DSR-20MD/20MDP

RMT-DS20

SERVICE MANUAL

US Model
Canadian Model
DSR-20MD
AEP Model
Australian Model
New Zealand Model
DSR-20MDP

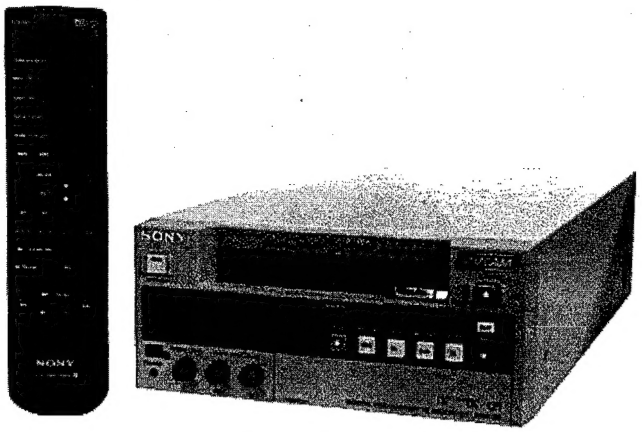


Photo: DSR-20MD

E MECHANISM

SPECIFICATIONS

System

Recording format DVCAM format
Video signal
DSR-20MD: EIA STANDARD, NTSC color system
DSR-20MDP: CCIR STANDARD, PAL colour system
Usable cassettes Standard-DVCAM cassettes and Mini-DVCAM cassettes
Recording time 184 minutes (when using the PDV-184ME cassette)
40 minutes (when using the PDVM-40ME cassette)

Clock

Quartz locked
DSR-20MD: 12-hour cycle display
DSR-20MDP: 24-hour cycle display
Power back-up Built-in self-charging capacitor
Back-up duration: up to about 100 hours
(After 8-hour charges)

Inputs and outputs

Video input BNC connector
Input signal: 1 Vp-p (75 ohms unbalanced)
Video output BNC connector
Output signal: 1 Vp-p (75 ohms unbalanced)
S video input Mini DIN 4-pin
Luminance signal: 1 Vp-p (75 ohms unbalanced)
Chrominance signal:
0.286 Vp-p (DSR-20MD)
0.3 Vp-p (DSR-20MDP)
(75 ohms unbalanced)
S video output Mini DIN 4-pin
Luminance signal: 1 Vp-p (75 ohms unbalanced)
Chrominance signal:
0.286 Vp-p (DSR-20MD)
0.3 Vp-p (DSR-20MDP)
(75 ohms unbalanced)
Audio input Phono jack (L, R)
Input level: 2 Vrms (full bit)
Input impedance: more than 47 kohms
Audio output Phono jack (L, R)
Output level: 2 Vrms (full bit)
Output impedance: less than 10 kohms
Monitor output BNC connector
Output signal: 1 Vp-p (75 ohms unbalanced)
Control S input Stereo minijack (1)
For the optional DSRM-10 Remote Control Unit
Foot switch input Stereo minijack (1)
For the optional Foot Switch
LANC input/output
Stereo mini-mini jack (1)
For the optional RM-95 Remote Commander

– Continued on next page –

DVCAM™ DIGITAL VIDEO CASSETTE RECORDER

MICROFILM

SONY®

RS-232C input/output
D-sub 9-pin connector (1)
Output: 3 kilohms at load
Typ ±9V
Input: 5 kilohms at load
High level 5 to 15V
Low level –5 to –15V

Headphones output
Stereo minijack (1)

DV input/output 4-pin jack (1)

General

Power requirements
DSR-20MD: 120 V AC, 60 Hz
12 V DC, 2.0 A (4.0 A at the peak)
DSR-20MDP: 220 – 240 V AC, 50 Hz
12 V DC, 2.0 A (4.0 A at the peak)

Power consumption
DSR-20MD: 0.45 A at 77°F, 120 V AC, 60 Hz (during playback)
DSR-20MDP: 0.35 A at 25°C, 220 – 240 V AC, 50 Hz (during playback)

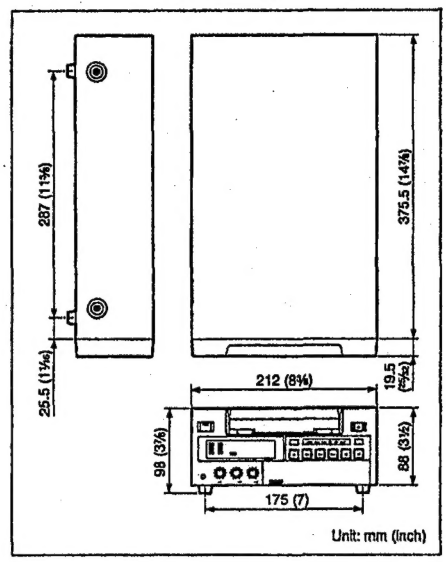
Operating temperature
5°C to 40°C (41°F to 104°F)

Storage and transport temperature
–20°C to +60°C (–4°F to +140°F)

Operating humidity
20% to 80%

Storage and transport humidity
20% to 80%

Dimensions Approx. 212 × 98 × 395 mm (8 3/8 × 3 7/8 × 15 5/8 inches) (w/h/d, including projecting parts and controls)



Mass Approx. 5 kg (11 lb.)

Supplied accessories
Remote commander (1)
Size AA (R6) batteries (2)
AC power cord (1)
Cleaning cassette (1)
Instructions for Use (1)

Design and specifications are subject to change without notice.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

SAFETY CHECK-OUT

(US Model only)

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the line cord for cracks and abrasion. Recommend the replacement of any such line cord to the customer.
6. Check the B+ voltage to see it is at the values specified.
7. Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

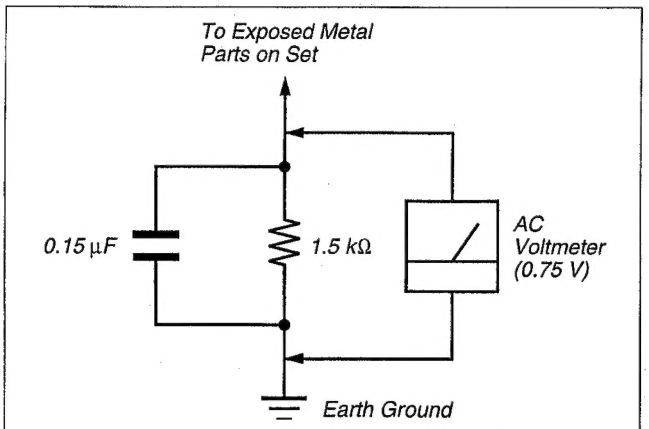


Fig. A Using AC voltmeter to check AC leakage

LEAKAGE TEST

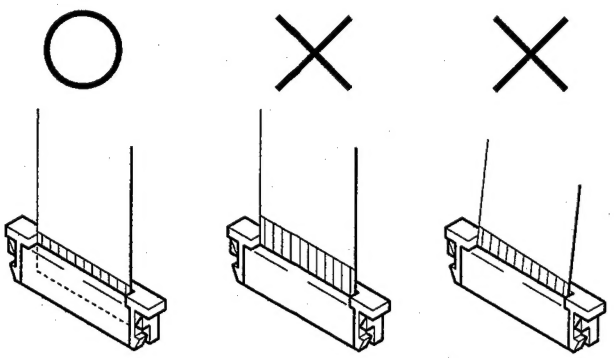
The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

SERVICE NOTE

- **Note for Repair**

Make sure that the flat cable and flexible board are not cracked or bent at the terminal.
Do not insert the cable insufficiently nor crookedly.



Cut and remove the part of gilt which comes off at the point. (Take care that there are some pieces of gilt left inside)

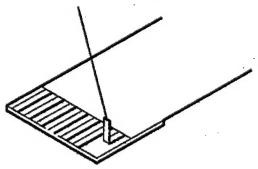


TABLE OF CONTENTS

SECTION 1
GENERAL

This section is extracted from DSR-20MD/20MDP instruction manual.

Features

The DSR-20MD/20MDP is a 1/4-inch digital video cassette recorder that uses the DVCAM digital recording format. This system achieves stable, superb picture quality by digitally processing video signals that are separated into color difference signals and luminance signals (component video).
The unit is equipped with a full-fledged analog interface to support hybrid systems that combine conventional analog equipment with digital equipment.

The DSR-20MD/20MDP's main features are described below.

DVCAM Format

DVCAM is based on the consumer DV format, which uses the 4:1:1 component digital format (DSR-20MD) or the 4:2:0 format (DSR-20MDP), and provides a 1/4-inch digital recording format for professional use.

High picture quality, high stability

Video signals are separated into color difference signals and luminance signals, which are encoded and compressed to one-fifth size before being recorded to ensure stable and superb picture quality.
Because the recording is digital, multi-generation dubbing can be performed with virtually no deterioration of quality.

Wide track pitch

The recording track pitch is 15 µm, fully 50 percent wider than the DV format's 10 µm track pitch. Thanks to this feature, the DVCAM format sufficiently meets the reliability and precision requirements of professional editing.

High-quality PCM digital audio

PCM recording makes for a wide dynamic range and a high signal-to-noise ratio, thereby enhancing sound quality.
There are two recording modes: 2-channel mode (48 kHz sampling and 16-bit linear code), which offers sound quality equivalent to the DAT (Digital Audio Tape) format, or 4-channel mode (32 kHz sampling and 12-bit nonlinear code).

Playback compatibility with DV format

A DV cassette recorded on a DV-format VCR can be played back on this unit. (Cassettes recorded in LP mode cannot be played back.)

Choice of two cassette sizes

The unit can use both standard-size and mini-size DVCAM cassettes.
- According to cassette size, it automatically changes the position of the reel drive plate.
- The maximum recording/playback times are 184 minutes for standard size cassettes and 40 minutes for mini-size cassettes.

Other Features

Compact size

The unit achieves compact size suitable for using on a demonstration. The unit is also equipped with basic functions that are needed for videocassette recorders and players used in professional digital video editing systems.

⎓ DC IN connector

The unit is equipped with the ⎓ DC IN connector to use in the case that the AC power is not available. Connect the optional BP-90A Ni-Cd Battery Pack with the battery adaptor and DC cable

Menu system for functionality and operation settings

The unit provides a menu system to make its various functions easier to use and set up its operation conditions.

Superimposition function

Time code, menus, error messages, and other text data can be superimposed and output in analog composite video signals.

Remote control

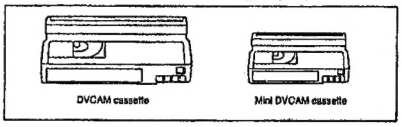
The unit can be operated by remote control from an editing controller that supports the RS-232C interface or from a SIRCS[1]-system remote controller or foot switch such as the optional DSRM-10 or SVRM-100A.

1) SIRCS
SIRCS-system has the same function as CONTROL S-system.

Notes on Video Cassettes

Usable cassettes

Use Standard-DVCAM cassettes or Mini-DVCAM cassettes with this VCR. PDV-184ME can record programs for 184 minutes and PDVM-40ME can record for 40 minutes.
You can get the highest quality pictures with this digital video cassette recorder using DVCAM cassettes. You may not be able to get as good quality with other cassettes. We recommend using DVCAM cassettes so that you can record your one-time events in highest quality.

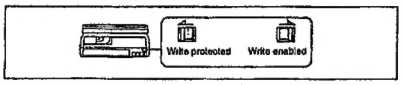


Cassette memory

Cassette memory is an optional feature that is mounted on some Standard DVCAM cassettes and Mini DVCAM cassettes. When you record a program, the recording date and time, and the program's position on the tape are stored in the cassette memory so that you can quickly locate the program later on. CM16K indicates that you can use the cassettes 16 kbits of data can be stored on. On this VCR, you can use the cassettes up to 16 kbits of data can be mounted on.

To save a recording

To prevent accidental erasure of a recording, slide in the safety switch on the cassette so that the red portion becomes visible. To record on a tape, slide out the switch so that the red portion is hidden.

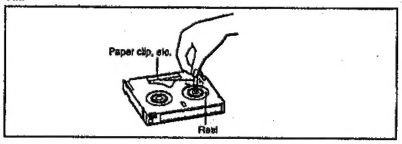


Note

DVCAM, DV, mini DV and CM are trademarks.

Checking the tape for slack

Using a paper clip or a similar object, turn the reel gently in the direction shown by the arrow. If the reel does not move, there is no slack. Insert the cassette into the cassette compartment, and after about 10 seconds take it out.



Notes on Recording / Playback

Copyright precautions

On recording
You cannot record any software having copyright protection signals on this VCR. If you start recording protected video and audio signals, a warning message appears on the monitor screen and the VCR stops recording.
On playback
When you play back software having copyright protection signals on this VCR, you may not be able to copy it onto other equipment.

Limitations caused by the difference in format

This VCR can record, play back and edit the tapes recorded in DVCAM format. It can also play back the tapes recorded in DV format (SP mode). However, due to the difference in format, you may not be able to record or edit some tapes affected by recording conditions of the tape (e.g., A tape originally recorded in DV format is dubbed in DVCAM format). For details, refer to "Compatibility of DVCAM and DV format" on page 42.

No compensation for contents of the recording

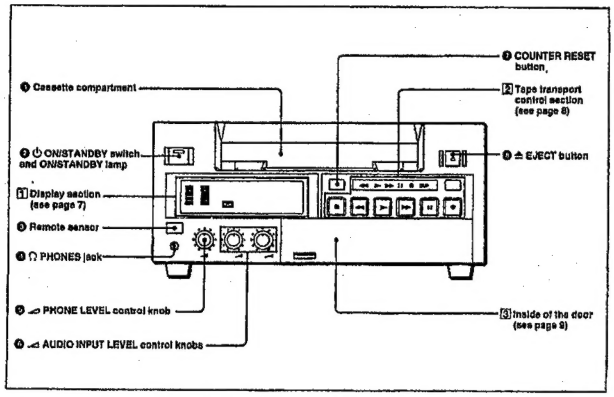
Contents of the recording cannot be compensated for if recording or playback is not made due to a malfunction of the VCR, video tape, etc.

Note

You cannot play back a DVCAM tape recorded in other color systems on this VCR.

Location and Function of Parts

Front Panel



❶ Cassette compartment
Accepts standard-size or mini-size DVCAM digital videocassettes. When using a mini-size cassette, insert it into the middle of the compartment.
For details of usable cassettes, see page 4.

❷ ⏻ ON/STANDBY switch and ON/STANDBY lamp
Press this switch to turn on the power, and the ON/STANDBY lamp lights in green. Press it again to turn to standby mode, and the lamp goes off.

Note
When the REMOTE/LOCAL switch is set to REMOTE, you cannot turn the unit to standby mode.

❸ Remote sensor

❹ ∩ PHONES jack (stereo minijack)
Connect stereo headphones for headphone monitoring during recording or playback.
The audio signal you want to monitor can be selected with the AUDIO MONITOR selector inside of the door (3).

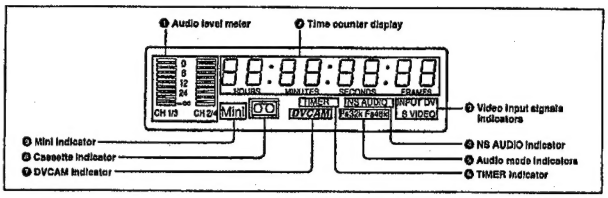
❺ PHONE LEVEL control knob
Controls the volume of the headphones connected to the ∩ PHONES jack.

❻ AUDIO INPUT LEVEL control knobs
When recording, you can use these knobs to set audio input levels for CH-1 (channel 1) and CH-2, respectively.

❼ COUNTER RESET button
Press this button to reset the tape counter in the display window to "0:00:00 (0H00M00S)." This button does not work when displaying the time code or the remaining time.

❽ ⏏ EJECT button
Press this button to eject a cassette.

1 Display section



❶ Audio level meter
Indicates the recording level during recording or EE mode[1] and the playback level during playback. When the audio level exceeds 0 dB, the red indicator lights.

Note
If you play back the tape whose audio was only recorded on channel 2, the audio level meter for CH2/4 may not function.

❷ Time counter display
Indicates the following:
- Time data: count value of the time counter, time code and remaining time
- Alarm messages *(see page 35)*
- Messages for self-diagnosis function *(see page 39)*

Notes
- For DSR-20MDP: Time code is set to the non drop frame mode only.
- Time code is indicated as follows:
  Drop frame: "00:00.00:00" ("00:00,00:00" on the monitor) (DSR-20MD only)
  Non drop frame: "00:00:00:00"

❸ Video input signals indicators
Indicates the currently selected video input signals. INPUT VIDEO, INPUT S VIDEO or INPUT DV lights.

❹ NS (Non Standard) AUDIO indicator
Lights when the VCR plays back a tape whose audio recording was made in the unlock mode, or when unlock mode signals are input through the DV i jack.
For details of unlock mode, see page 42.

❺ Audio mode indicators
Indicates the audio mode during playback or recording, or while in EE mode.
- During playback it indicates the audio mode in which the tape was recorded.
- During recording or while in EE mode, it indicates the currently selected audio recording mode. You can select audio recording mode by setting "AUDIO MODE" menu *(see page 33)*.

Fs32k: Lights when playing the tapes recorded in 4-channel mode, or recording a tape in 4-channel mode.
Fs48k: Lights when playing the tapes recorded in 2-channel mode, or recording a tape in 2-channel mode.

Note
When recording in 4-channel mode on this VCR, audio signals are recorded only in channels 1/2.

❻ TIMER indicator
Lights when setting the TIMER switch to REPEAT or REC.

❼ DVCAM indicator
Lights except playing back the DV-formatted tapes.

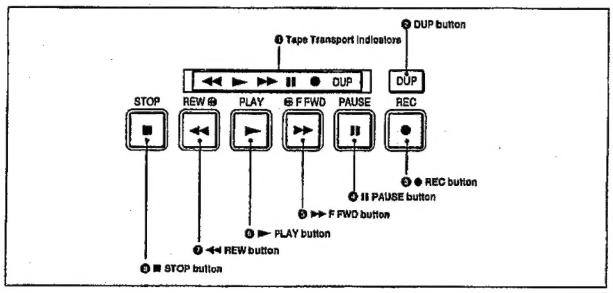
1) **EE mode**
"EE" stands for "Electric to Electric". When in this mode, the video and audio signals that are input to the VCR's recording circuitry do not pass through any magnetic conversion circuits but instead are output via electric circuits only. This mode is used to check input signals and adjust input levels.

Location and Function of Parts

❽ Cassette indicator
Lights when inserting a digital video cassette available for this VCR. It flashes when ejecting a cassette.

❾ Mini indicator
Lights when inserting mini-size digital video cassette.

2 Tape transport control section



❶ Tape Transport indicators

❷ DUP (duplicate) button
Use this button to make a work tape having the same time code as the source tape.
For details of duplicate, see page 30.

❸ ● REC (record) button
When you press the ▶ PLAY button while holding down this button, the indicator lights and recording begins. To set the VCR to recording pause mode, press the ❚❚ PAUSE button while holding down this button.

❹ ❚❚ PAUSE button
When you press this button, the indicator lights and the VCR is set to pause mode.

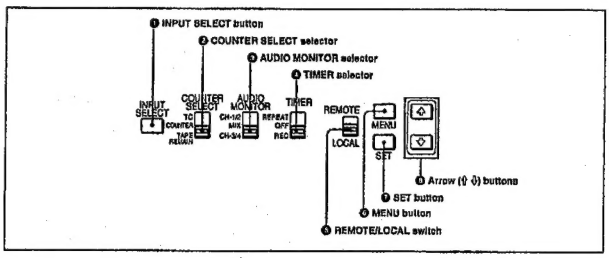
❺ ⏩ F FWD (fast forward) button
When you press this button, the indicator lights and the tape is fast forwarded. During fast forward, the picture does not appear on the monitor (you can see the picture of the EE mode during fast forward).
To search forward, hold this button down during fast forward.

❻ ▶ PLAY button
When you press this button, the indicator lights and playback begins.
If you press this button while holding down the ⏪ REW button during stop, the tape is rewound to its beginning and starts playing automatically (during rewind, the REW indicator lights and the PLAY indicator flashes).

❼ ⏪ REW (rewind) button
When you press this button, the indicator lights and the tape starts rewinding. During rewind, the picture does not appear on the monitor (you can see the picture of the EE mode during rewind).
To search backward, hold this button down during rewind.
If you press the ▶ PLAY button while holding down this button during stop, the tape is rewound to its beginning and starts playing automatically (during rewind, the REW indicator lights and the PLAY indicator flashes).

❽ ■ STOP button
Press this button to stop the current tape transport operation.

3 Inside of the door



❶ INPUT SELECT button
Select video input signals. Each press of this button cycles through three video signal selection options: video, S-video, and DV input. When you select one of these options, the corresponding indicator in the display lights up.

❷ COUNTER SELECT selector
Select the type of time data in the time counter display.
TC: Time code
COUNTER: Count value of the time counter
TAPE REMAIN: Remaining time

❸ AUDIO MONITOR selector
Use to select the audio track you want to hear when playing back a tape recorded in 4-channel mode (Fs32k).
CH-1/2: Channels 1/2 only
MIX: Channels 1/2 and channels 3/4 (mix)
CH-3/4: Channels 3/4 only

❹ TIMER selector
Use to select timer recording or auto repeat using an external AC timer (not supplied).
REPEAT: When the power is supplied to this VCR, a tape rewinds to its beginning automatically and playback starts. The VCR repeats the playback from the beginning to the first index (if there is no index on the tape, to the unrecorded portion; if no unrecorded portion, to the tape end). Auto repeat also functions if you set this selector to REPEAT during playback.
OFF: Timer is released.
REC: When the power is supplied to this VCR, recording starts.

❺ REMOTE/LOCAL switch
Selects whether the unit is operated from its front panel or from external (remote) equipment.
REMOTE : The unit is operated from an editing controller connected to the RS-232C ⊡ connector on the rear panel. No operation on the front panel works except sliding the switch or selectors.
LOCAL : The unit is operated from its front panel, from an external equipment connected to the LANC ⊕ jack on the rear panel, or from a SIRCS-system remote controller connected to the REMOTE ⊡ CONTROL S jack on the rear panel.

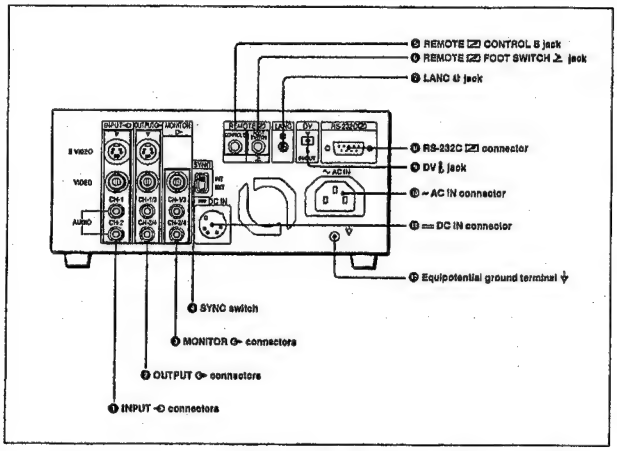
❻ MENU button
Press this button to display the menu on the monitor screen. Press it again to return from the menu display to the usual display.

Note
If you set the REMOTE/LOCAL switch to REMOTE while the menu display is on the monitor, it returns to the usual display.
On how to use the menu, see Chapter 3 "Menu Settings."

❼ SET button
Press this button to save selected menu items to the unit's memory.

❽ Arrow (⇧ ⇩) buttons
Use these buttons to move around the menu items.

Rear Panel



❶ INPUT connectors
Input video and audio signals. To connect a VCR equipped with the S-video output jack, use the S VIDEO jack on this VCR.

❷ OUTPUT connectors
Output video and audio signals. To connect a VCR equipped with the S-video input jack, use the S VIDEO jack on this VCR.

❸ MONITOR connectors
Output video and audio signals for monitoring.

❹ SYNC switch
Selects the reference signal. The video signal is locked to V-sync or H-sync, but not locked to sub-career. The sync phase is not adjusted. The video signal is not locked to DV input.
INT: Selects the playback signal on this VCR as the reference signal.
EXT: Selects the input video signal from the external equipment connected to this VCR as the reference signal.

Notes
- The picture and the sound may be distorted if:
  – You set the SYNC switch during playback.
  – The analog signal is input from the INPUT connectors during playback with the SYNC switch set to EXT.
- If the SYNC switch is set to EXT during playback, the INPUT SELECT button does not work.

❺ REMOTE CONTROL S jack
Connect a SIRCS-system remote controller. When controlling this VCR from a remote controller such as the DSRM-10 or SVRM-100A (not supplied), connect the unit to the editing controller via this jack.

Note
SIRCS-system has the same function as CONTROL S-system.

❻ REMOTE FOOT SWITCH jack
Connect the optional Foot Switch to control this VCR.

Note
The Foot Switch must be conformed with Standard UL2601-1/EN60601-1.

For details on the Foot Switch, consult with authorized Sony dealers.

❼ LANC jack
When you connect the LANC jacks on this VCR and the other VCR, you can control this VCR (player) from the other VCR. The LANC connection transmits signals such as control signals, time code and time counter data and status data.
You can control this VCR by connecting the optional RM-95 Remote Commander to this jack.

Notes
- The other VCR (recorder) receives the time code data from the LANC jack only when this VCR (player) is set to show the time code indications.
- If the REMOTE/LOCAL switch is set to REMOTE, the LANC connection does not transmit signals.

❽ RS-232C connector (D-sub 9-pin)
Connect an editing controller or a personal computer with the RS-232C interface for remote-control of this VCR.

❾ DV jack
The DV jack is i.LINK compatible. Use when the equipment connected to the VCR has a DV jack.
If you connect the VCR and the other equipment using DV jacks, you can minimize deterioration of picture quality during dubbing, editing or capturing still pictures into a personal computer by digital processing. For details, refer to the instruction manual of the equipment you use.

Note
is a trademark of Sony Corporation and indicates that this product is in agreement with IEEE1394-1995 specifications and their revisions.

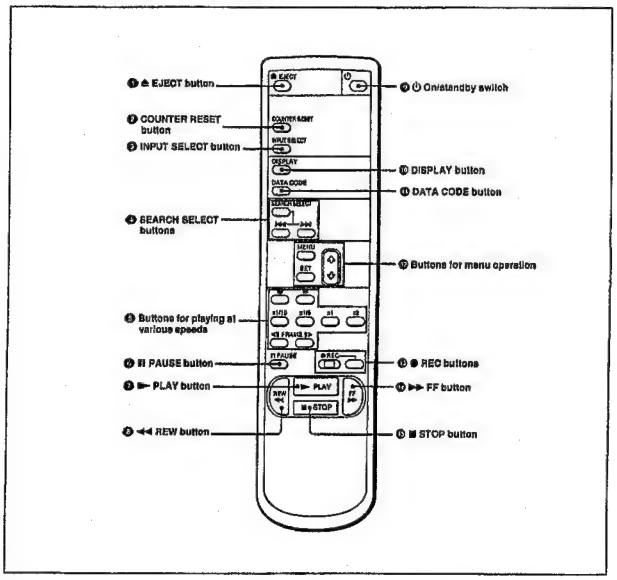
❿ AC IN connector
Connect to an AC power outlet using the supplied power cord.

⓫ DC IN connector
Connect the optional BP-90A Ni-Cd Battery Pack with the battery adaptor and DC cable.

Notes
- If the voltage of the Battery Pack falls less than 11 V, a beep sound is output (when BEEP in the menu is set to OFF, it is not output) and "delo" appears in the display window. Replace the battery by a charged one or remove it to use the AC power outlet.
- If the voltage of the Battery Pack falls less than 10.5 V, a beep sound is output (when BEEP in the menu is set to OFF, it is not output) and the VCR is set to the standby mode. As you cannot turn on the VCR at this moment, replace the battery by a charged one or remove it to use the AC power outlet.

⓬ Equipotential ground terminal
Used to connect to the equipotential plug to bring the various parts of a system to the same potential.
Refer to "Important safeguards/notices for use in the medical environment" on page ii.

Supplied Remote Commander



❶ EJECT button

❷ COUNTER RESET button

❸ INPUT SELECT button

❹ SEARCH SELECT buttons
Press these buttons to search for scenes using the index function.
For details, see "Searching using the index function" on page 19.

❺ Buttons for playing at various speeds
buttons
×1/10 button
×1/5 button
×1 button
×2 button
FRAME buttons
For details, see "Playing at various speeds" on page 18.

❻ PAUSE button

❼ PLAY button

❽ REW button

❾ On/standby switch

❿ DISPLAY button
Press this button to see the indications, such as tape counter, on the monitor screen.

⓫ DATA CODE button
Press this button to see tape information on the monitor screen.
For details, see "Displaying tape information" on page 22.

⓬ Buttons for menu operation
MENU button
SET button
buttons

⓭ REC buttons
When you press these buttons at the same time, the indicator lights and recording begins.

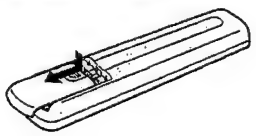
⓮ FF button

⓯ STOP button

Note
When using the supplied remote commander, set REMOTE CONTROL in the menu to VTR4 *(see page 34)*. Otherwise, you cannot operate this VCR with the supplied remote commander.

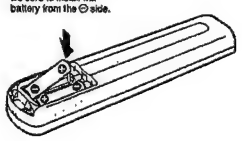
Battery Installation

1 Push and slide the lid to open.

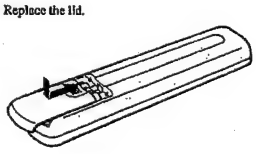


2 Install the two size AA (R6) batteries (supplied) with the correct polarity.

Be sure to install the battery from the ⊖ side.



3 Replace the lid.



Notes on batteries
- Make sure that the battery orientation is correct when inserting batteries.
- Do not mix an old battery with a new one, or different types of batteries.
- If you will not use the Remote Commander for a long time, remove the batteries to avoid damage from battery leakage. If batteries have leaked, remove them, wipe the battery compartment dry and replace the batteries with new ones.

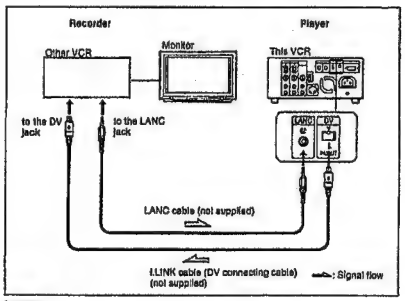
Playback

This section describes the necessary connections, settings and operations to perform playback on this unit. The same settings and operations apply whether you are using the unit as part of an editing system, for dubbing, or as a stand-alone videocassette player.

Connections for Playback

To digital video equipment with DV jack

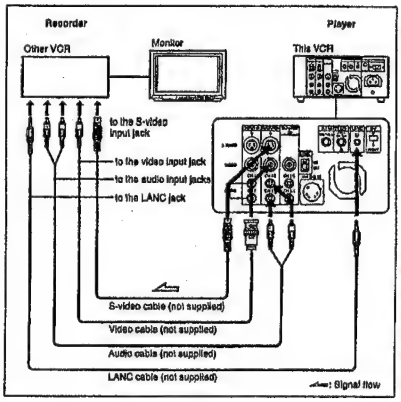
The video and audio signals are sent with hardly any degradation, enabling high-quality editing. The signal flow is automatically detected so you need not make separate connections for input and output.



Notes

- Set DV EE OUT in the menu to OFF *(see page 34)*.
- Audio signals are not output during playing at various speeds.
- With the DV connection, the sound is recorded in the same audio recording mode as that of the source tape. To record in a different audio recording mode from the source tape, use the INPUT ⟲ connectors instead.
- With the DV connection, tape information (recording date, camcorder data, etc.) recorded on the source tape is transmitted from this VCR (player). As a result, when you play back a recorded tape and press the DATA CODE button, the same tape information recorded on the source tape is displayed on the monitor screen. However, contents of the cassette memory are not transmitted. In addition, the time code is newly recorded on the tape on the other VCR, except when copying a tape in Duplicate mode.
- As for the LANC connection, see "Notes for LANC connection" on the next page.

To video equipment without DV jack



Notes

- When you connect output jacks of the recorder to input jacks of this VCR, select the input correctly to prevent a humming noise.
- Distorted signals (e.g., when played back at a speed other than normal) will not be recorded properly.
- The indications displayed on the monitor screen are output only via the MONITOR ⟲ connector.

Notes for LANC connection

- With the LANC connection, refer to the instruction for use supplied with the recorder VCR.
- The LANC connection transmits signals such as control signals, time code, time counter data and status data.
- If the other VCR has a LANC ⟲ jack of 5-pin DIN type, connect with the VK-810 Control L connecting cable (not supplied).
- The jacks labeled CONTROL L have the same function as LANC ⟲ jacks. The jacks labeled REMOTE on other equipment may also have the same.
- The other VCR (recorder) receives the time code data from the LANC ⟲ jack only when this VCR (player) is set to show the time code indications.
- With the LANC connection, this VCR only works as a slave unit.

Playback

Settings for Playback

Preparation on the player (this VCR)

1 Power on the video monitor, then set the monitor's input according to the input signals from the recorder.

2 Set up the recorder.
For details, see "Preparation on the recorder" below.

3 Power on this unit by pressing the ⏻ ON/STANDBY switch.

The ON/STANDBY lamp lights in green.

4 If the other equipment that controls this VCR has the time code function, set the COUNTER SELECT selector to TC *(see page 9)*.

5 When you play back a tape recorded in 4-channel mode (Fs 32k), set the AUDIO MONITOR selector to MIX *(see page 9)*. Then select the precise balance between the tracks with the AUDIO MIX BALANCE in the menu *(see page 33)*.

Notes

- With the DV connection, the playback VCR's AUDIO MONITOR (sound selection) and AUDIO MIX BALANCE (audio balance adjustment) do not function on the source audio output through the DV jack.
- You cannot change the input signal selection during playback or playback pause mode.

Preparation on the recorder

- Insert a tape for recording.
- Select the formats of video and audio input signal to be recorded.
- Set the LANC mode to M.

Notes

- Editing is not possible with a tape that is copyright protected.
- You cannot use the video equipment that has no LANC mode switch as a recorder.

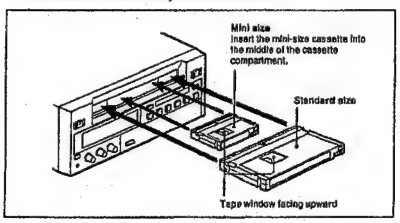
Playback Procedure

Notes

- When controlling this unit from an editing controller or a personal computer, set the REMOTE/LOCAL switch to REMOTE. When not, set the switch to LOCAL *(See page 9)*.
- Do not insert the cassette forcibly. The VCR may be damaged.

1 After checking the tape for slack, hold the cassette so that the tape window is facing upward, then insert it into this unit as illustrated below.
For details of checking the tape for slack, see page 5.

The cassette is automatically drawn into the unit.



2 Press ► PLAY.

This starts the playback operation.

Playback Functions

Playing at various speeds

You can enjoy playback functions using supplied remote commander.

Playback options	Operation
Play at 1/10 of normal speed	Press x 1/10 during playback
Play at 1/5 of normal speed	Press x 1/5 during playback
Play at normal speed	Press x 1 during playback
Play at twice the normal speed	Press x 2 during playback
Play frame by frame	Press FRAME ◄II/II► during pause.

To hear the sound during playing at various speeds
If you want to hear the sound during playing at various speeds, set JOG WITH SOUND in the menu to ON *(see page 33)*.

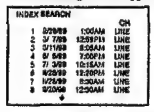
Searching using the index function

Three kinds of search are available on this VCR:
- Searching for the beginnings of recordings: Index search
- Searching for a point on the tape where the recorded date changes: Date search
- Searching for scenes recorded in the photo mode with a digital camcorder: Photo search

Searching with the cassette memory
If the tape has a cassette memory, the recordings are listed in the chronologically in the order they were made. You can search using this chronological list.
If the tape does not have a cassette memory, you cannot search for scenes in the chronological order.

1 Press SEARCH SELECT to select the search type: INDEX, DATE or PHOTO SEARCH.

The chronological list appears on the monitor screen.



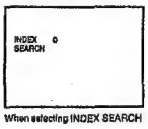
When selecting INDEX SEARCH (DSR-20MD)

2 Press ⏮ or ⏭ to select a recording.

The VCR starts searching and when it locates the recording, begins playback. During Photo search, the VCR pauses.

Searching without cassette memory
When you use a tape without a cassette memory, the VCR searches in the order of the actual positions of the recordings, regardless of the setting of CASSETTE MEMORY SEARCH in the menu.
When you use a tape with a cassette memory, set CASSETTE MEMORY SEARCH in the menu to OFF *(see page 34)*.

1 Press SEARCH SELECT to select the search type.



When selecting INDEX SEARCH

2 Press ⏮ or ⏭ repeatedly to locate the recording you want.

The VCR starts searching backwards or forwards until the index number comes to zero, then plays back the recording. During Photo search, the VCR pauses.

How signals are recorded
The VCR marks the tape when ● REC button is pressed.
There are three different signals for each search method. The type of signal recorded and where it is recorded (on the tape or in the cassette memory) depends on the video equipment used for recording. Please note that if the signals for certain search type are not recorded, you cannot do that type of search.

When you record with a Sony digital camcorder (DSR-200/200P/200A/200AP/PD100/PD100P/PD100A/PD100AP)

Signals for	In cassette memory	On tape
Index search*	No	No
Date search	Yes	Yes
Photo search	Yes	Yes

When you record on this VCR

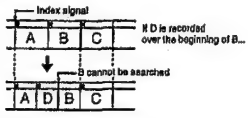
Signals for	In cassette memory	On tape
Index search*	Yes	Yes
Date search	No	Yes
Photo search	No	No

* The signals for Index search are recorded when you start recording in stop mode.

Note
When recording on this VCR, signals for index search do not have information on a day of the week.

About the cassette memory
- If you use a tape with CM mark, the cassette memory stores up to 135 index signals. (The number changes depending on the data size combination of index, date, and photo data stored on a tape.) This VCR is capable of storing and retrieving up to 16 kbits of cassette memory.
- To locate recordings whose signals are disabled to be stored in the cassette memory, or to locate recordings in order of their position on the tape, set CASSETTE MEMORY SEARCH in the menu to OFF *(see page 34)*. You can use the same procedure to search for a recording on a tape without cassette memory.

Notes
- Each program is indexed at its beginning. If you record another program over the beginning of the first program, you will not be able to locate the original program.

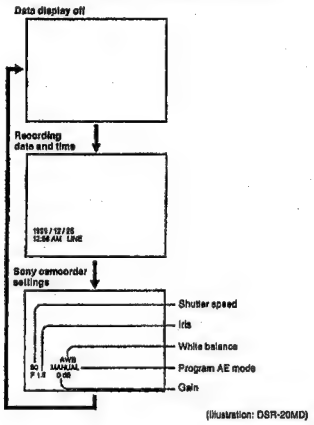


- You cannot add indexes after recording.
  To add indexes only for Auto Repeat, start recording from the point you want to start indexing.
- You cannot erase indexes after recording.
  To delete indexes for Auto Repeat, set INDEX WRITE in the menu to OFF *(see page 34)*. Then record over the index signal you want to erase.
- Searching may not be done correctly if the signals were not recorded on a Sony-brand digital video equipment.

Displaying tape information

If you record on a tape using a Sony digital camcorder DSR-200/200P/200A/200AP/PD100/PD100P/PD100A/PD100AP, camcorder data (the shutter speed, program AE mode, white balance, iris and gain) can be recorded on the tape. You can check these data during playback on this VCR.

Press DATA CODE during playback.
Each time you press DATA CODE, the display changes as follows.



(Illustration: DSR-20MD)

Notes

- When the information was not recorded, "- - -" appears instead.
- The camcorder data displayed on the monitor screen by this VCR are partially different from those shown by the digital camcorder.

Auto Repeat

This VCR can repeat the playback of all or a part of the tape.

1 Set the TIMER selector on the front panel to REPEAT.

The TIMER indicator on the front panel lights.

2 Press ◄◄ REW to rewind the tape to its beginning.

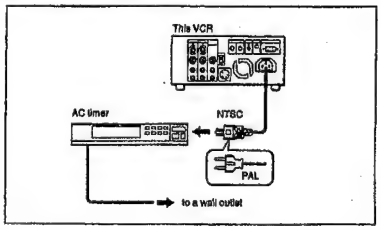
3 Press ► PLAY.

Playback starts automatically. The VCR repeats the playback from the beginning to the first index (if there is no index on the tape, to the unrecorded portion; if no unrecorded portion, to the tape end).

Auto Repeat using an external AC timer

If you connect an external AC timer (not supplied) to this VCR, you can repeat playback automatically at the preset time.

1 Connect an external AC timer (not supplied) to this VCR.



2 Set the TIMER selector on the front panel to REPEAT.

The TIMER indicator in the display window lights.

3 Set the timer-on time on the external AC timer.

At the preset time, the power turns on, and Auto Repeat playback starts automatically within one minute. The VCR repeats the playback from the beginning to the first index (if there is no index on the tape, to the unrecorded portion; if no unrecorded portion, to the tape end).

Notes

- The VCR cannot search for an index or unrecorded portion within 20 seconds from the beginning of the tape.
- While a tape is running, do not turn off the power using an AC timer. The VCR and a tape may be damaged. When turning off the power of the VCR, make sure to press the ■ STOP button on this VCR first to stop the tape transport, then turn off the power.

To stop Auto Repeat

Press the ■ STOP button.

To release Auto Repeat mode

Set the TIMER selector to OFF.

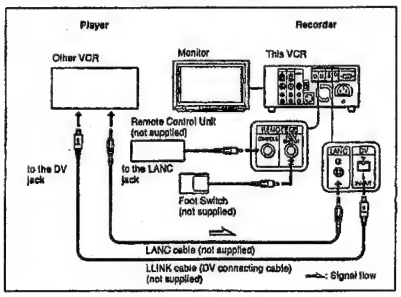
Recording

This section describes the necessary connections, settings and operations to perform recording on this unit. The same settings and operations apply whether you are using the unit as part of an editing system, for dubbing, or as a stand-alone recorder.

Connections for Recording

To digital video equipment with DV jack

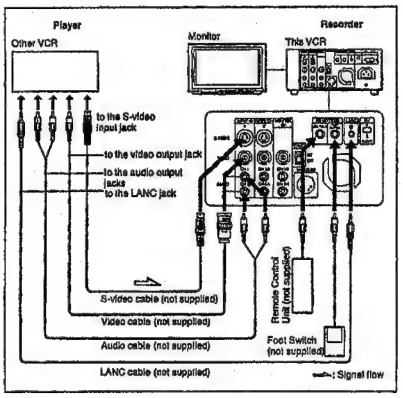
The video and audio signals are sent with hardly any degradation, enabling high-quality editing. The signal flow is automatically detected so you need not make separate connections for input and output.



Notes

- Audio signals are not output during playing at various speeds.
- With the DV connection, the sound is recorded in the same audio recording mode as that of the source tape. To record in a different audio recording mode from the source tape, use the INPUT ⟲ connectors instead.
- With the DV connection, tape information (recording date, camcorder data, etc.) recorded on the source tape is transmitted from the other VCR (player). As a result, when you play back a recorded tape and press the DATA CODE button, the same tape information recorded on the source tape is displayed on the monitor screen. However, contents of the cassette memory are not transmitted. In addition, the time code is newly recorded on the tape on this VCR, except when copying a tape in Duplicate mode.
- As for the LANC connection, see "Notes for LANC connection" on the next page.

To video equipment without DV jack



Notes

- When recording the analog input signals, this VCR can digitally output the signals from the DV ⅊ jack for backup. Set DV EE OUT in the menu to ON *(see page 34)*.
- When you connect output jacks of this VCR to input jacks of the player, select the input correctly to prevent a humming noise.
- Distorted signals (e.g., when played back at a speed other than normal) will not be recorded properly.
- The indications displayed on the monitor screen are output only via the MONITOR connector.

Notes for LANC connection

- With the LANC connection, refer to the instruction for use supplied with the player VCR.
- The LANC connection transmits signals such as control signals, time code and time counter data and status data.
- If the other VCR has a LANC jack of 5-pin DIN type, connect with the VK-810 Control L connecting cable (not supplied).
- The jacks labeled CONTROL L has the same function as LANC jacks. The jacks labeled REMOTE on other equipment may also have the same.
- This VCR (recorder) receives the time code data from the LANC jack only when the other VCR (player) is set to show the time code indications.
- With the LANC connection, this VCR only works as a slave unit.

Settings for Recording

Preparation on the recorder (this VCR)

Notes

- Before recording, set the clock on the VCR so that the recording time can be written into the index signal. You can set the clock by setting the CLOCK SET menu *(see page 34)*.
- When controlling this unit from an editing controller or a personal computer connected to the RS-232C connector, set the REMOTE/LOCAL switch to REMOTE. When not, set the switch to LOCAL *(See page 9)*.
- Editing is not possible with a tape that is copyright protected.

1 Power on the video monitor, then set the monitor's input according to the input signals from this unit.

2 Set up the player to play back a tape.
For details, see "Preparation on the player" on the next page.

3 Power on this unit by pressing the ⏻ ON/STANDBY switch.

The ON/STANDBY lamp lights in green.

4 Use the COUNTER SELECT selector to select the type of time data to be used.

Type of time data	Set the selector to
Count value of the time counter	COUNTER
Time code	TC

5 Select the video and audio input signals to be recorded.

Press INPUT SELECT to select the desired signal. Each press of this button cycles through three video signal selection options: video, S-video, and DV input. Each selection is shown by a lit indicator in the display window.

Note

Once you have started recording, you cannot change the input signal selection (except during recording pause mode).

6 When using the line connections (INPUT connectors), select the audio mode.

Select the desired mode by setting the AUDIO MODE menu.

Audio mode	Set the menu to
2-channel mode	Fs48k
4-channel mode	Fs32k

On how to use the menu, see Chapter 3 "Menu Settings."

Notes

- In the DVCAM format, there are two audio recording modes, with either two channels at 48 kHz or four channels at 32 kHz. It is not possible to select other modes (for example with four channels at 48 kHz).
- When recording in 4-channel mode on this VCR, audio signals are recorded only in channels 1/2.
- Once you have started recording, you cannot change the audio mode selection.

7 Use the AUDIO INPUT LEVEL control knobs to adjust audio input levels.

Watching the audio level meter *(see page 7)*, adjust the level so that the meter does not indicate higher values than 0 dB when the audio signal is at its maximum.
When the level exceeds 0 dB, sound distortion occurs.

Note

With the DV connection, the recorder VCR's AUDIO MODE (sound selection) and AUDIO INPUT LEVEL (audio balance adjustment) do not function.

Preparation on the player

- Insert a source tape.
- If the player VCR has an EDIT switch, set it to ON.
- Turn off the on-screen display.
- Set the LANC mode to M.

Note

With the DV connection, the playback VCR's AUDIO MONITOR (sound selection) and AUDIO MIX BALANCE (audio balance adjustment) do not function on the source audio output through the DV ⅊ jack.

Recording Procedure

Note

When controlling this unit from an editing controller or a personal computer connected to the RS-232C connector, set the REMOTE/LOCAL switch to REMOTE. When not, set the switch to LOCAL *(See page 9)*.

1 After checking that the cassette's safety switch is set to write enabled position and the tape for slack, hold the cassette so that the tape window is facing upward, then insert it into this unit.

For details of the cassette's safety switch, see page 4. For details of checking the tape for slack, see page 5.

The cassette is automatically drawn into the unit and the tape is wound round the head drum. The tape is stationary while the head drum rotates.

2 Press the playback button on the player.

This starts the player's playback operation.

3 Press and hold ● REC, and press ► PLAY.

This starts the recorder's recording operation.

To stop recording
Press the ■ STOP button.

To record using the optional Foot Switch

1 Press the pedal of the Foot Switch when the VCR is in stop mode.

The VCR starts recording.

2 Press the pedal again.

The recording stops and the VCR goes into recording pause mode.

To stop recording
Press the ■ STOP button on the VCR.

Notes

- You should set the REMOTE/LOCAL switch to REMOTE to prevent concurrent use of the foot switch and the front panel controls.
- The beginning of the recording (for about two seconds) cannot be made. If you immediately start recording, press the pedal twice to go into recording pause mode, then start recording.
- The Foot Switch must be conformed with Standard UL2601-1/EN60601-1.

- The recording pause mode will be automatically released after five minutes to protect the tape, and the VCR goes into stop mode.
- The foot switch operation works even if the VCR is in any operation mode. To prevent accidental erasure of a recording, you should slide in the safety switch on the cassette so that the red portion becomes visible before you insert the cassette into this VCR.

Duplicate

If you copy a source tape, using the DUP (duplicate) button on this VCR, you can copy the time code recorded on the source tape as they are. You can easily make a work tape having the same time codes as the source tape.
The duplicate function on this VCR works only when using a source tape recorded in DVCAM format and making DV connections.

1 Connect this VCR and the other (playback) VCR, using an i.LINK cable (DV connecting cable) (not supplied) and select DV with the INPUT SELECT selector on this VCR.

2 Locate the points where you want to start playback and recording.

3 Press ■ STOP on this VCR to stop the tape transport operation.

4 Press and hold DUP on this VCR, and press ► PLAY.

The DUP indicator flashes and this VCR enters into duplicate-standby mode.

Notes

- If the other (playback) VCR has already started playback, the DUP indicator lights and duplicate starts immediately.
- If the other (playback) VCR is in the playback pause mode, duplicate starts immediately and this VCR continues to record a still picture and a certain time code.

5 Press the play button on the other VCR to start playback.

The DUP indicator lights and duplicate starts.

To adjust the point where duplicate starts
In step 4 above, press and hold the DUP button instead of the ► PLAY button, and press the II PAUSE button. This VCR remains recording standby mode until you press the II PAUSE button again.
After the other VCR starts playback, press the II PAUSE button at the point where you want to start duplicate.

To stop duplicate
Press the ■ STOP button.

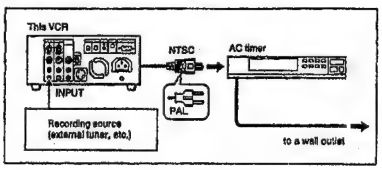
Notes

- During duplicate, do not change the speed of the player's tape or set it to pause mode. Otherwise, the time code of the recorded tape becomes out of sequence and you cannot use it for editing.
- During duplicate, time counter does not appear. Check it in the other VCR.
- When you start duplicating, the first part of the source tape may be dropped on the copied tape. Play back the source tape from the preceding point. You cannot completely copy the tape if the source tape is recorded from its beginning point.
- You may not be able to copy the first part or an unrecorded portion of the source tape. Locate the recorded portion on the source tape, then start copying.
- The recording does not stop the moment you press the ■ STOP button to stop editing. The source picture may be recorded a little longer than you expected.
- If you duplicate a tape by using two DSR-20MD/20MDPs, set DV EE OUT in the menu of the player to OFF *(see page 34)*.
- The index signals are not recorded when the duplicate starts.
- If you set the REMOTE/LOCAL switch to REMOTE during duplicate, the tape stops.

AC timer recording

By connecting this VCR to an external AC timer (not supplied), you can start recording at a preset time.

1 Connect this VCR to an external AC timer (not supplied).



2 Insert a tape for recording.

3 Press INPUT SELECT to select the recording source.

4 Set the timer-on time on the connected AC timer.

At the preset time, the power of this VCR and the recording source turn on automatically and recording starts about several to 10 seconds later. Set the timer allowing a margin for the recording to start.

5 Set the TIMER selector at the front to REC.

You need not press ● REC.

If the tape ends before the recording source stops operation
The tape stops without rewinding.
If you set AUTO REWIND in the menu to ON, the tape rewinds to its beginning automatically *(see page 34)*.

To stop recording during the timer recording
Press the ■ STOP button.

To release AC timer recording
Set the TIMER selector to OFF.

Note

While a tape is running, do not turn off the power using an AC timer. The VCR and a tape may be damaged. When turning off the power of the VCR, make sure to press the ■ STOP button on this VCR first to stop the tape, then turn off the power.

Changing Menu Settings

This VCR has various functions available, and you can set and check them on the monitor screen. **Before operation, set the clock by setting the CLOCK SET menu.**
You can change the menu settings on the SET UP MENU screen.
If necessary, change the settings manually during editing, etc.

Changing the SET UP MENU Settings

Follow the instructions below to change the settings.

1 Press MENU.

The SET UP MENU appears on the monitor screen.
To cancel the menu settings, press MENU again.

2 Press ⇧/⇩ to select the option you want to change, and press SET.

Each menu option appears on the monitor screen *(see the table below)*.

3 Press ⇧/⇩ to change the setting, and press SET.

The menu disappears from the monitor screen.

Menu Contents

Initial settings are indicated in bold letters.

Menu options	Set this option to	Description of settings
AUDIO MIX BALANCE		If you set the AUDIO MONITOR selector to MIX, you can select the precise balance between channels 1/2 and channels 3/4 by five steps.
AUDIO MODE	**Fs48k**	• To set the audio mode to 2-channel mode (16bit mode). This mode uses the whole audio area to record one stereo track. You can get higher sound quality.
	Fs32k	• To set the audio mode to 4-channel mode (12bit mode). This mode separates the audio area into two parts. You can record two kinds of audio, stereo 1 and stereo 2. When recording on this VCR, audio signals are recorded only in channels 1/2.
JOG WITH SOUND	**ON**	• To listen to the sound when playing a tape in various speeds.
	OFF	• To turn off the sound when playing a tape in various speeds.

Menu Organization

Menu options	Set this option to	Description of settings
REMOTE CONTROL		Set the command mode (VTR1 to 6, INST) on this VCR. Change this setting when using infrared remote commander or external (remote) equipment to remotely control the unit. When using the supplied remote commander, select VTR4 (initial setting). When using the remote controller such as the optional DSRM-10 or SVRM-100A, select INST. When selecting OFF, you cannot remotely control the unit.
RS232C BAUD RATE	9600bps 19200bps	• To set the baud rate with an editing controller that supports RS-232C interface to 9600bps. • To set the baud rate to 19200bps.
DISPLAY POSITION	CENTER LOWER RIGHT	• To display the tape counter in the center of the monitor screen. • To display the tape counter in the lower right of the monitor screen.
CAUTION DISPLAY	ON OFF	• To display the alarm message on the monitor screen. • Not to display the alarm message.
BEEP	ON OFF	• To output a beep sound when an illogical operation is made. • To deactivate it.
INDEX WRITE	AUTO OFF	• To record index signals when recording begins. • Not to record index signals.
CASSETTE MEMORY SEARCH	AUTO OFF	• To search recordings with the cassette memory. If the tape does not have a cassette memory, the VCR will search recordings using index signals recorded on the tape itself. • To search recordings using the index signals recorded on the tape.
CASSETTE MEMORY ERASE	ALL DATA INDEX DATA DATE DATA PHOTO DATA	• To erase all the data in the cassette memory. • To erase index data in the cassette memory. • To erase date data in the cassette memory. • To erase photo data in the cassette memory. **Note** When using the cassette whose memory can store over 16 Kbits of data, you can only select ALL DATA. You cannot erase index data on the tape.
TIME CODE (DSR-20MD only)	AUTO NDF DF	• To set the time code to the same one as already recorded on the tape. • To set the time code to Non Drop Frame. • To set the time code to Drop Frame. **Note** If you use AUTO and start recording at the beginning of the tape, the time code is set to Non Drop Frame.
AUTO OFF	ON OFF	• To turn off the VCR automatically if there is no operation for an hour during stop mode (Auto Off). • To deactivate Auto Off.
AUTO REWIND	ON OFF	• To rewind the tape to its beginning automatically if the tape reaches to an end (Auto Rewind). • To deactivate Auto Rewind.
PHOTO PB	FIELD FRAME	• To prevent the picture from blurring when playing a tape recorded in photo mode. • To see clear picture when playing a still picture. **Note** When using FRAME, the picture recorded in photo mode may blur.
CLOCK SET		Set the clock on this VCR so that the recording time can be written into the index signal. Using ⇧/⇩ and SET buttons, set the date and time.
HOURS METER	 DRUM ROTATION THREADING	The digital hours meter keeps cumulative counts of the head drum rotation time and the number of unthreading operations. These counts can be displayed on the monitor screen and are unresettable. • The cumulative total hours of drum rotation with tape threaded is displayed in 10-hour increments. • The cumulative number of tape unthreading operation is displayed in 10-operation increments.
DV EE OUT	ON OFF	• To output the selected line input signals from the DV jack. • To output only playback video and audio signals from the DV jack.

Alarm Messages

Various messages appear on the monitor screen ("Err" appears in the display window). Check them with the following list.

Message	Meaning / Remedy
PLEASE CONFIRM THE SAFETY SWITCH OF THE CASSETTE	Check that the protect tab is slid in so that the red portion visible. → Slide back the safety switch *(see page 4)*.
NO CASSETTE MEMORY	You try to erase cassette memory when there is no cassette memory.
VCR IS RECORDING	You press a certain operation button during recording or editing.
PLEASE INSERT A NEW CASSETTE	Though no cassette is inserted in the cassette compartment, you press ► PLAY, etc. → Insert a cassette.
THE TAPE IS REWOUND	You press ◄◄ REW at the beginning of the tape.
PLEASE REWIND OR INSERT A NEW CASSETTE	You try to start playback or recording at the tape end. → Rewind the tape or insert a new cassette.
PLEASE SET THE CLOCK	When turning on the power, the clock has not been set. → Set the clock in the menu *(see page 34)*.
THIS PROGRAM IS COPYRIGHT PROTECTED	You try to dub the tape on which copyright protect signals are recorded.
CASSETTE MEMORY IS TOO LARGE TO ERASE	You try to erase "INDEX DATA," "DATE DATA," or "PHOTO DATA" on a tape having more than 16 Kbits memory capacity. → Erase "ALL DATA" on the tape *(see page 34)*.
WRITING ON CASSETTE MEMORY. PLEASE WAIT	You do certain operation while the VCR is writing on cassette memory. → Operate after writing on cassette memory is complete.
VCR IS IN DUP MODE	You press a certain operation button during duplicate.

Troubleshooting

If the VCR does not function or functions incorrectly, check the following.

Symptom	Cause / Remedy
The power cannot be turned on.	The power plug is disconnected. → Connect the plug.
The unit will not operate even if the power has been turned on.	• The REMOTE/LOCAL switch is set to REMOTE. → Set it to LOCAL *(See page 9)*. • Moisture condensation occurs. → Turn off the power and disconnect the power plug. After about one minute, connect the plug and turn on the power. → Wait for about one hour with the power turned on. • The cassette is not inserted straight. → Insert it straight.
The unit cannot be controlled using buttons on the unit.	The REMOTE/LOCAL switch is set to REMOTE. → Set it to LOCAL *(See page 9)*.
The cassette cannot be ejected.	The REMOTE/LOCAL switch is set to REMOTE. → Set it to LOCAL *(See page 9)*.
The cassette cannot be inserted, or it is ejected promptly.	• There is moisture condensation on the head drum. → Wait for about an hour. • The cassette is not inserted straight. → Insert it straight.
No picture.	The video heads are dirty.→ Clear the video heads using the cleaning cassette.
Noise appears on the screen.	• A damaged cassette is inserted.→ Insert other cassette. • The video heads are dirty.→ Clear the video heads using cleaning cassette.
No picture via the DV jack.	Reconnect an i.LINK cable (DV connecting cable) (not supplied).
The audio is noisy.	A damaged cassette is inserted.→ Insert other cassette.
The playback automatically starts when the power is turned on.	The TIMER selector is set to REPEAT. → Set it to OFF *(See page 9)*.
The recording automatically starts when the power is turned on.	The TIMER selector is set to REC. → Set it to OFF *(See page 9)*.
The remote commander does not function.	The batteries are dead. → Replace the batteries. Something is blocking the infrared rays. → Remove the obstacle. The command mode is wrong. → Set up REMOTE CONTROL in the SET UP MENU *(See page 34)*.
The menu does not appear.	Connect the video monitor to the MONITOR connector.

Notes on Use

Notes on the video cassette recorder

Do not install the unit in a place subject to direct sunlight or heat sources
If you do, its cabinet, mechanical parts, etc., may be damaged.

Do not install the unit in an extremely hot place
If the unit is left in a car parked with its windows closed (especially in summer), its cabinet may be damaged or it may not work correctly.

If the unit is brought directly from a cold to a warm location
Moisture may condense inside the unit and cause damage to the video head and tape. If you use the unit in a place subject to direct cold currents from an air conditioner, moisture may also condense inside the unit.

Do not place a heavy objects on the unit
The cabinet may be damaged, or the VCR may not work correctly.

Do not handle the recorder roughly
Avoid rough handling or mechanical shock.

To avoid damaging the cabinet finish
Plastic is often used for the surface finishing of the recorder. Do not spray a volatile solvent such as an insecticide toward the cabinet or place rubber or vinyl products on the cabinet for a long time. If you do, the finish of the cabinet may be damaged or the coating may come off.

Do not clean the cabinet with thinner or benzine
The cabinet may be damaged or its coating may come off. When you use a chemical-impregnated cloth, use it according to its directions.

Clean the cabinet with soft dry cloth
When the cabinet is very dirty, clean it with a soft dry cloth lightly moistened with a mild detergent solution and finish it with dry cloth.

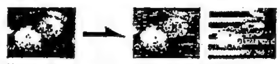
Do not put magnetic objects close to the unit
Magnetic fields may damage the recording.

Checking the video heads every 1000 hours
A VCR is a high-precision piece of equipment that records and plays back the picture on a magnetic tape. In particular, the video head and other mechanical parts become dirty or worn. To maintain a clean picture, we recommend maintenance every 1000 hours, though the using condition may differ depending on temperature, humidity, dust, etc.

Cleaning of the video heads

If the video heads are contaminated, the pictures cannot be recorded properly or the playback pictures become noisy. If the following phenomena occur, use the cleaning cassette PDVM-12CL (supplied) or PDV-12CL (not supplied) to clean the heads.
- Square-shaped noise appears on the playback picture.
- A part of the playback picture does not move.
- The playback picture does not appear on the screen.

Symptoms caused by contaminated video heads



Normal picture — If these pictures appear on the screen, use the cleaning cassette.

To use the cleaning cassette
Refer to your cleaning cassette's operating instructions.

After prolonged use, the video heads may become worn out. If optimum picture quality is not restored even after you have cleaned the video heads with the cleaning cassette, the video heads may have worn out. In that case, you have to replace the video heads with new ones. Please consult your Sony dealer.

Notes on the video cassettes

Cleaning the terminal
If the terminal of the Standard-DVCAM or Mini-DVCAM cassette gets dirty, or dust sticks to the terminal, the VCR may not work correctly.
Clean the terminal with the swab once every ten times you eject a cassette.


Terminal

When affixing a label on the cassette
Be sure to affix a label on only the correct location so as not to cause malfunction of the VCR.

After using a cassette
After use, please be sure to rewind the tape completely (to prevent picture and sound distortion). Return it to its case and store in upright position.

About moisture condensation

If the unit or tape is brought directly from a cold to a warm location, moisture may condense inside or outside the unit or tape. If you use the tape or video heads in this condition, the tape may adhere to the head drum, and the video heads or the tape may be damaged, or malfunction may occur.

Moisture condensation is likely to occur under the following conditions:
- The unit is brought from the cold outdoors to a warm indoor location.
- The unit is brought from the air-conditioned indoors to the hot outdoors.
- The unit is used in a place subject to cold currents from an air conditioner.

When bringing the unit from a cold place to a warm place or vice versa, put it in a plastic bag and seal the bag tightly. After bringing it into the new place, leave the bag on for about an hour, and remove the bag when the air temperature inside it has reached the temperature surrounding it.

If moisture condensation occurred
You cannot operate the unit except to press ⏏ EJECT. If you insert a cassette, it is ejected automatically. If this occurs, turn on the power, wait about an hour for the moisture to evaporate.

Digital hours meter

The digital hours meter keeps cumulative counts of the head drum rotation time and the number of unthreading operations. These counts can be displayed on the monitor screen. Use them as guidelines for scheduling maintenance.
In general, consult your Sony dealer about necessary periodic maintenance checks.

The digital hours meter has the following two display modes and you can check them in the HOURS METER menu *(see page 34)*.

- **DRUM ROTATION mode**
  The cumulative total hours of drum rotation with tape threaded is displayed in 10-hour increments.
- **THREADING mode**
  The cumulative number of tape unthreading operation is displayed in 10-operation increments.

Self-diagnosis function

The unit is equipped with the self-diagnosis function that works to prevent the VCR from malfunctioning. A two-digit service number appears in the display window. In this case, check the following table.

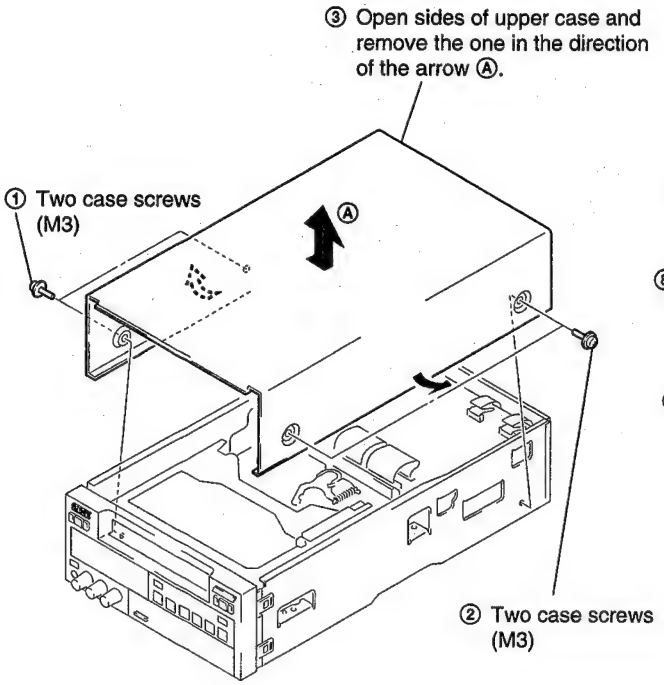
Message	Symptom	Remedy
22	The video heads are dirty.	Clear the heads. *(See page 36)*
32	To prevent the unit from malfunctioning, the self-diagnosis function has worked.	• Disconnect the power cord. After reinstalling the power source, operate the unit. • Remove the cassette or turn on/off the unit.
21	Moisture condensation has occurred.	Remove the cassette and leave the unit for at least one hour.

If you are unable to resolve the problem, contact your Sony dealer or local authorized Sony service facility and inform them of the number.

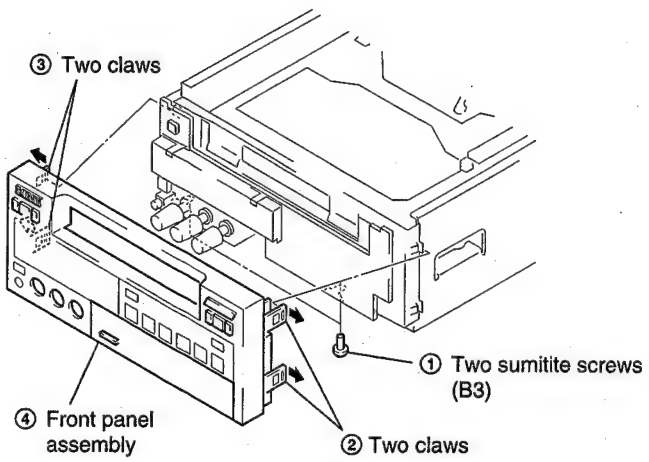
SECTION 2
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

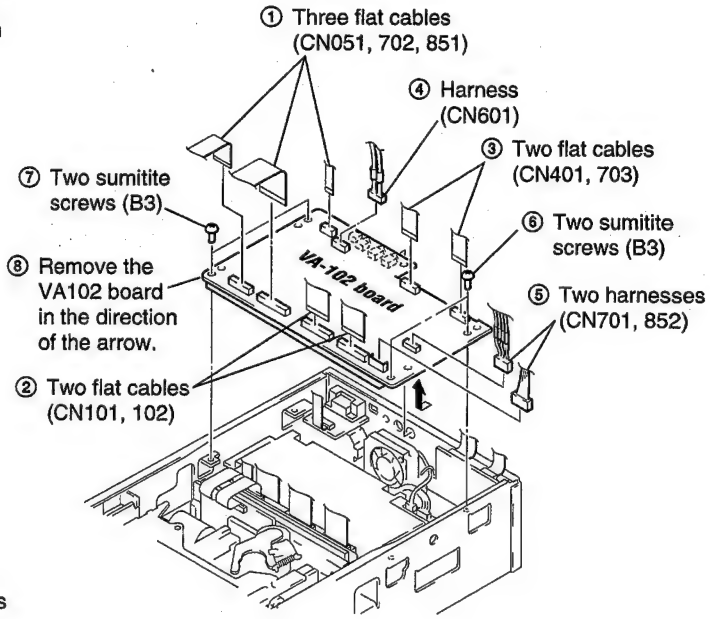
2-1. REMOVAL OF UPPER CASE



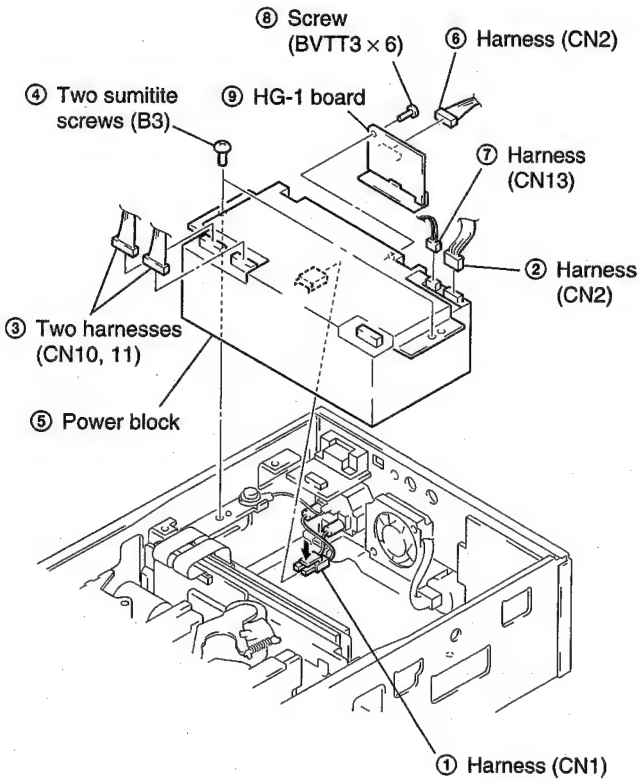
2-2. REMOVAL OF FRONT PANEL ASSEMBLY



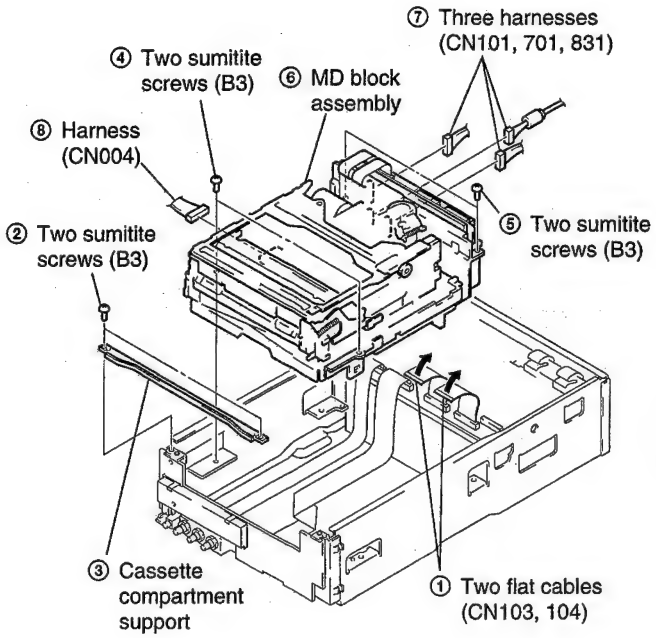
2-3. REMOVAL OF VA-102 BOARD



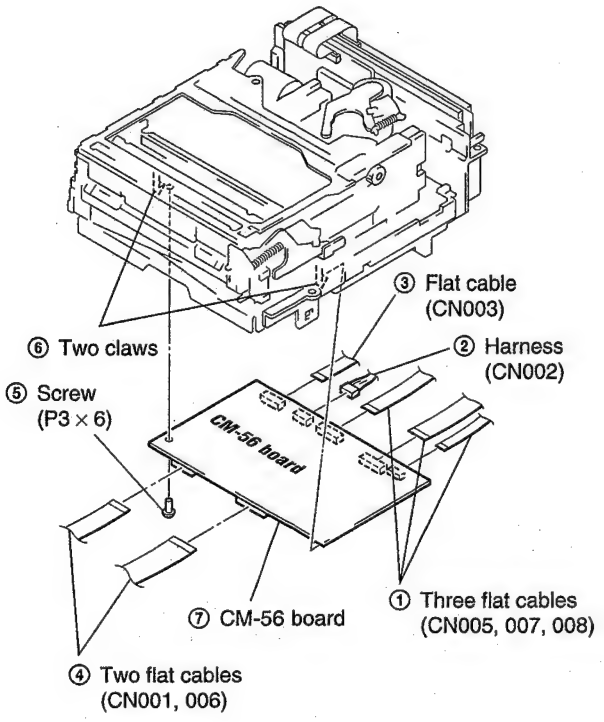
2-4. REMOVAL OF POWER BLOCK



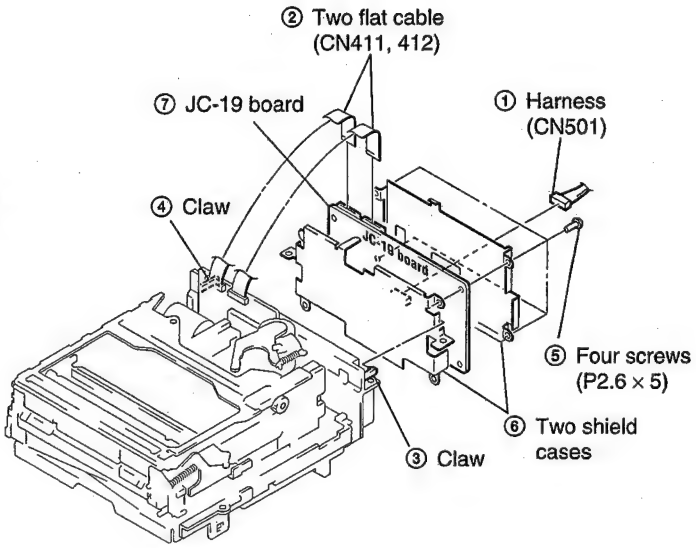
2-5. REMOVAL OF MD BLOCK ASSEMBLY



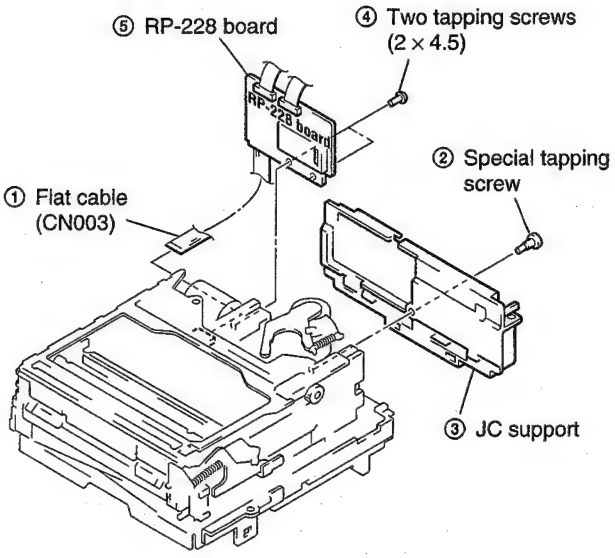
2-6. REMOVAL OF CM-56 BOARD



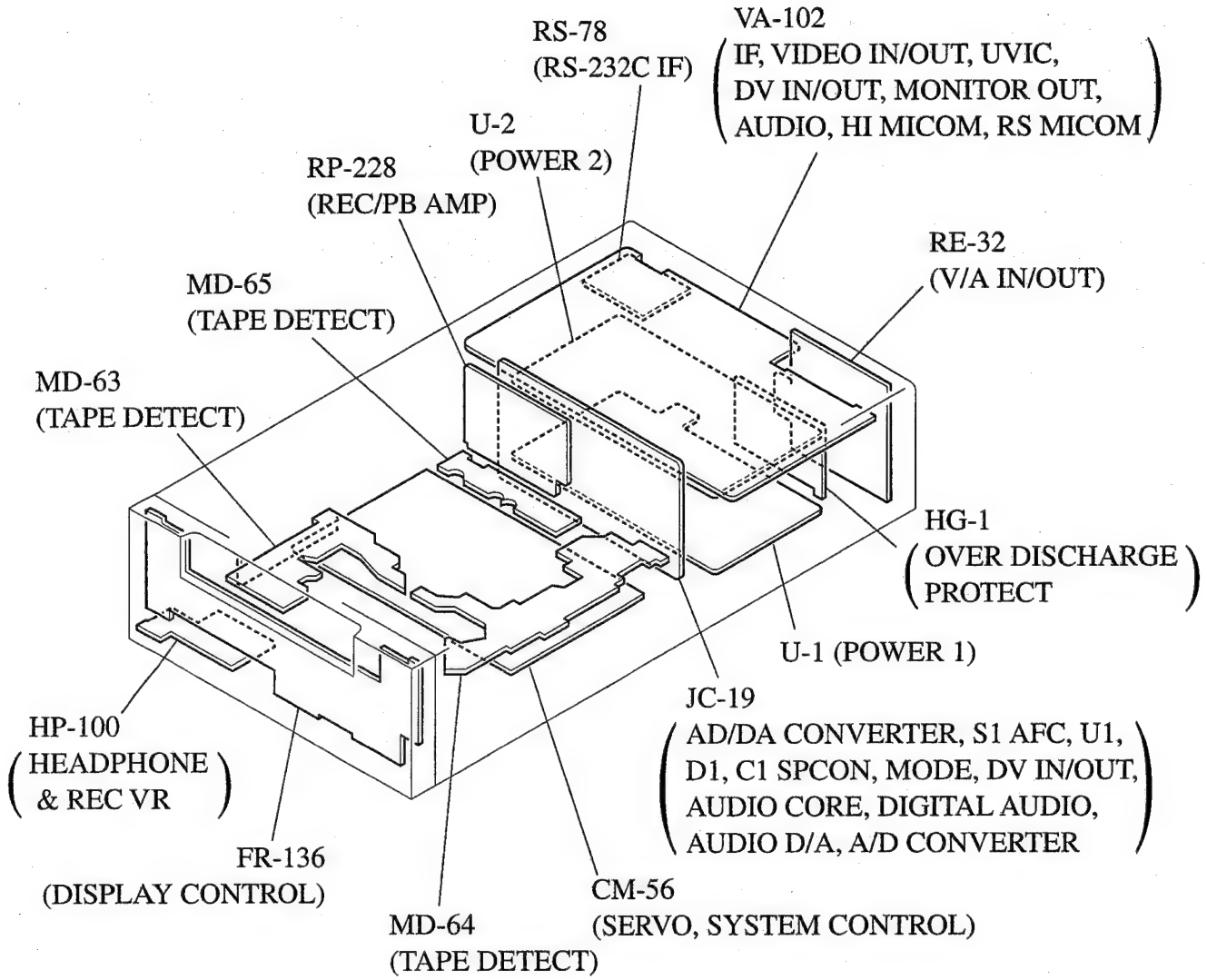
2-7. REMOVAL OF JC-19 BOARD



2-8. REMOVAL OF RP-228 BOARD

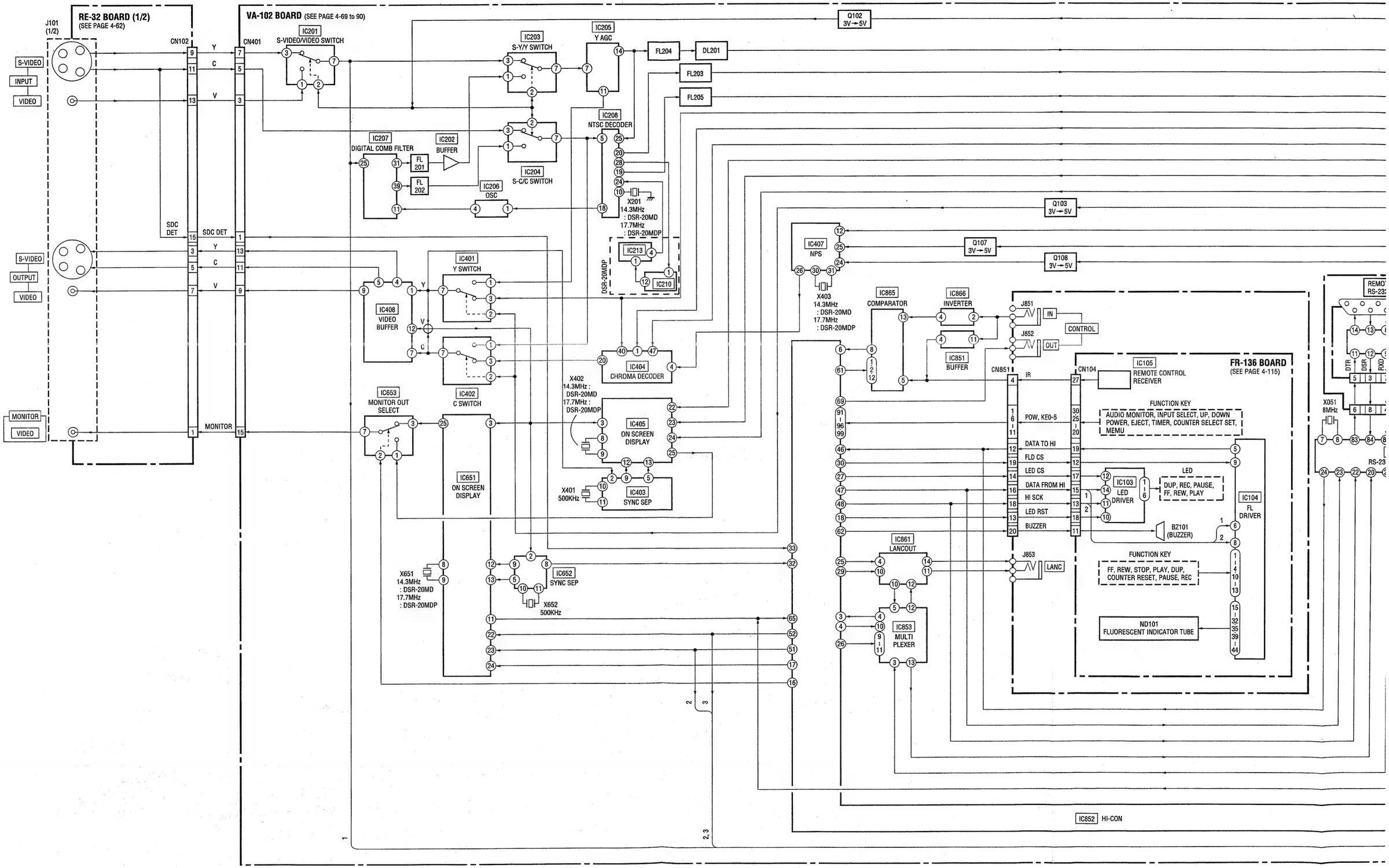


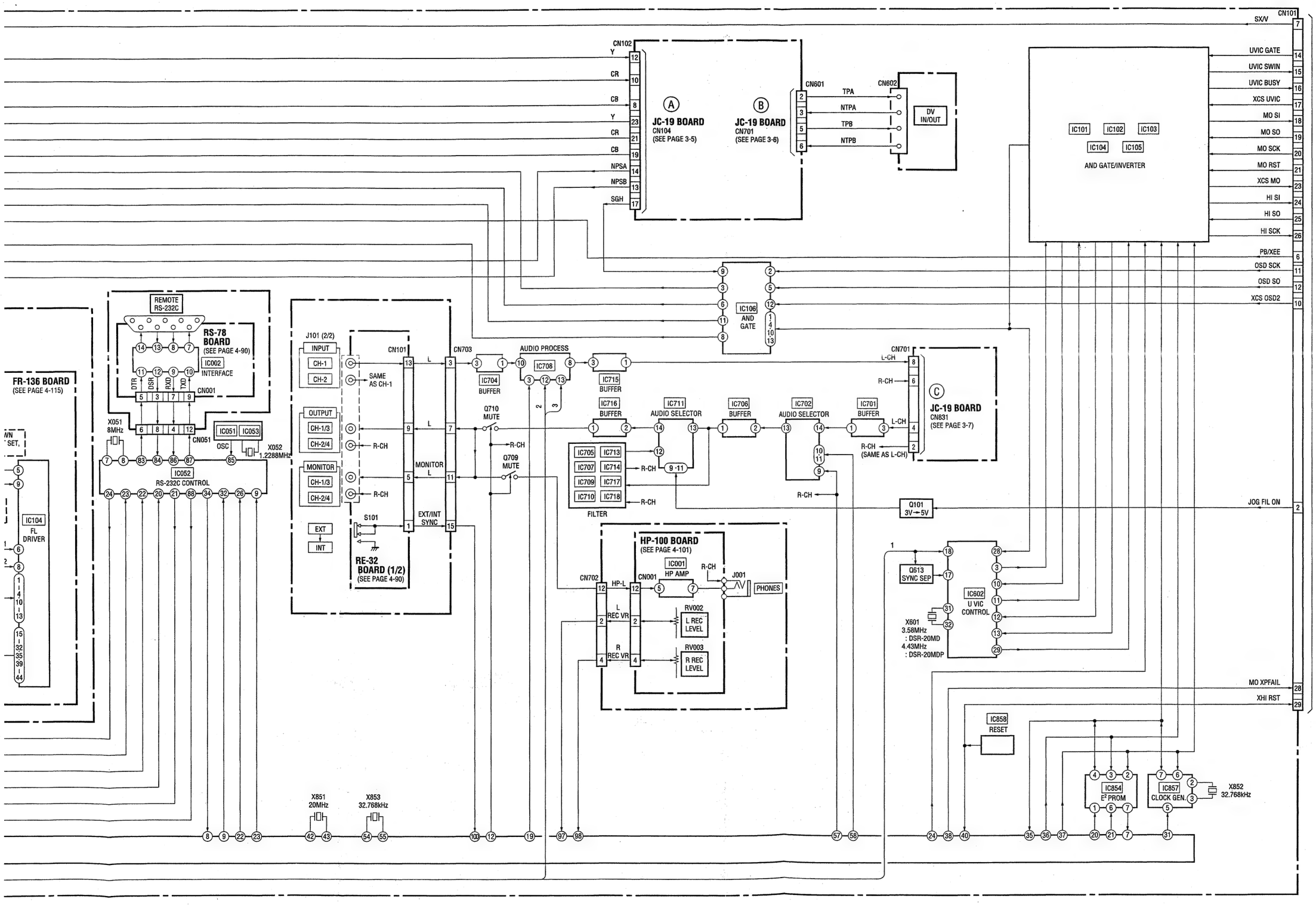
2-9. CIRCUIT BOARDS LOCATION



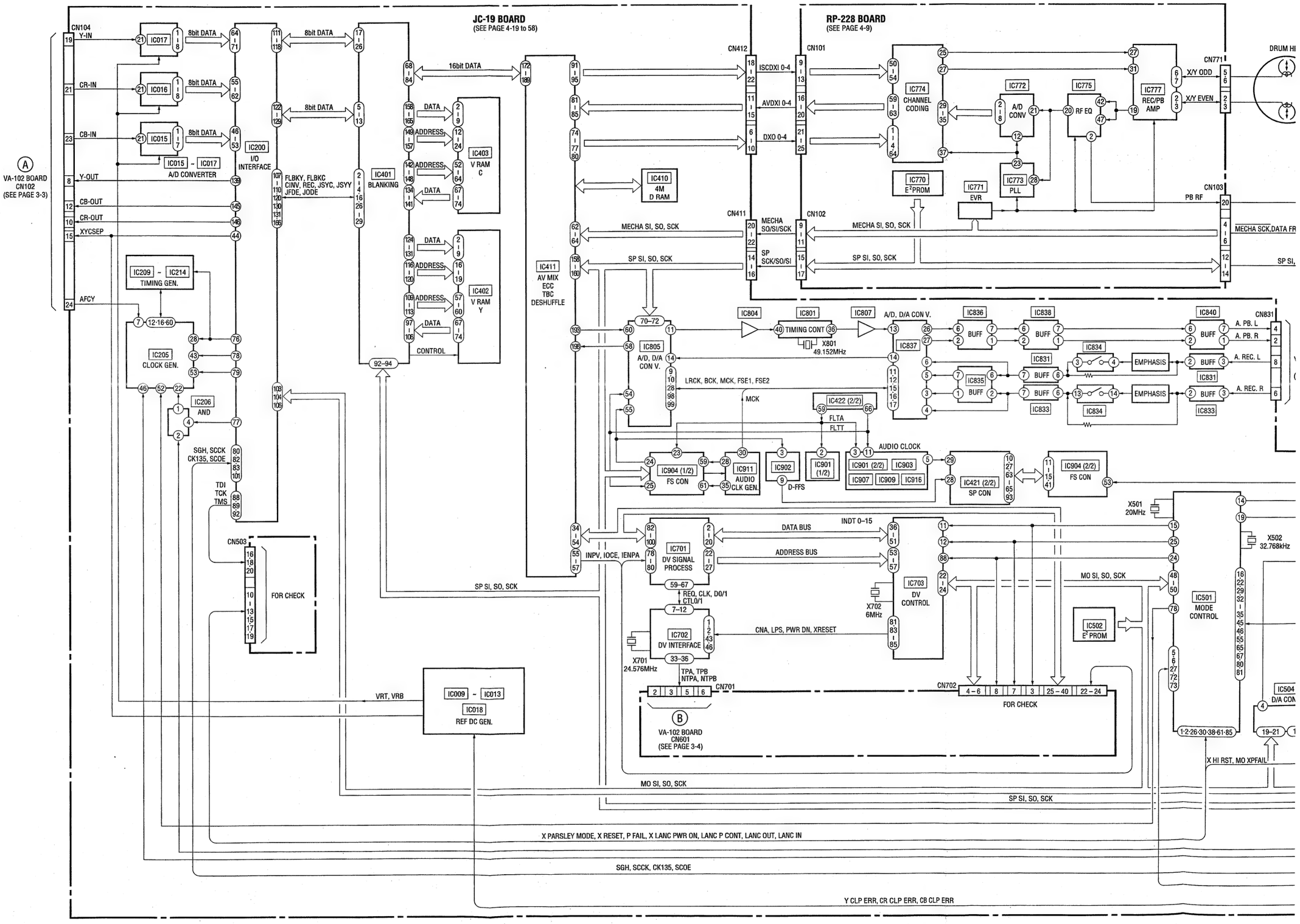
SECTION 3
BLOCK DIAGRAMS

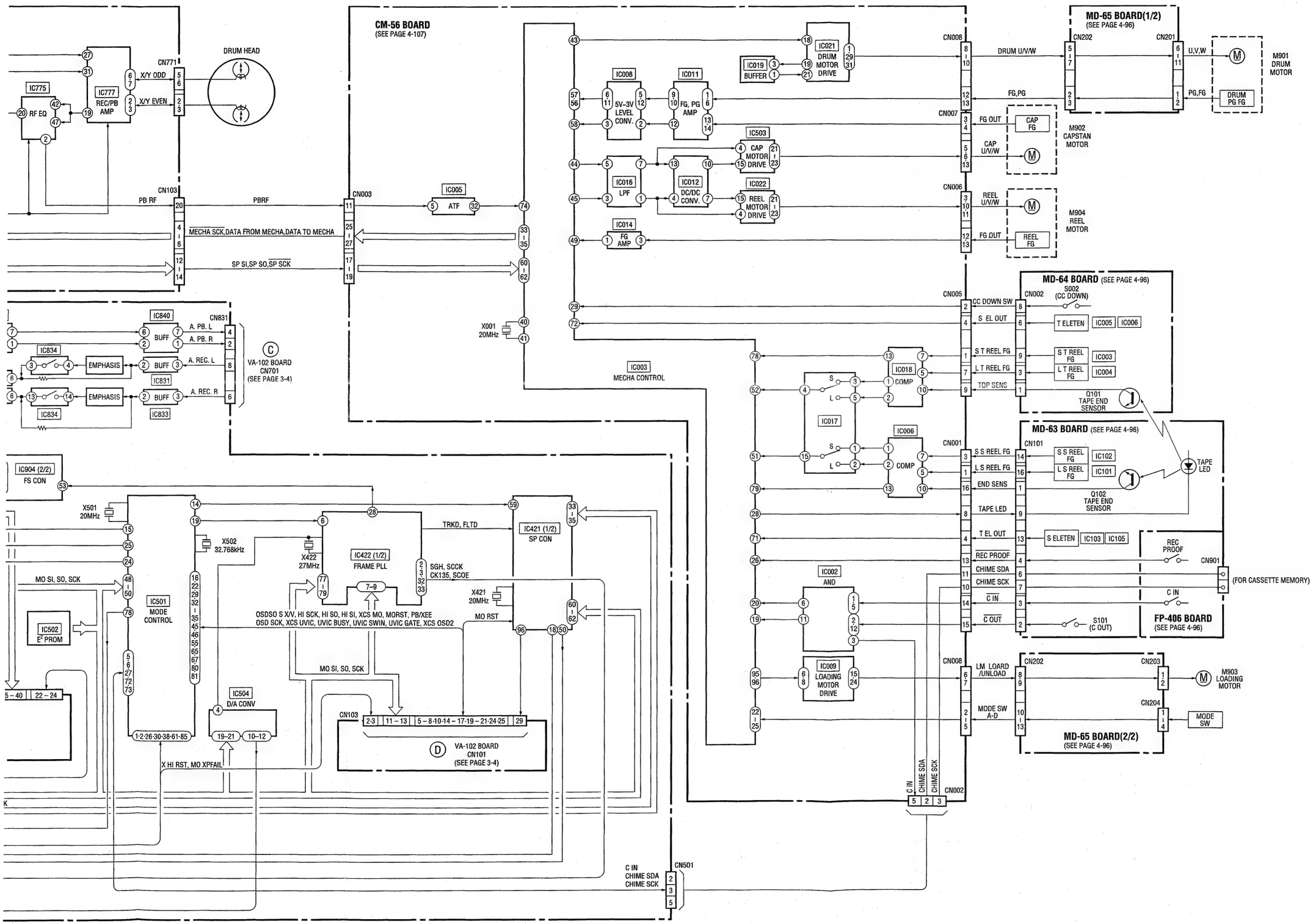
3-1. OVERALL BLOCK DIAGRAM 1



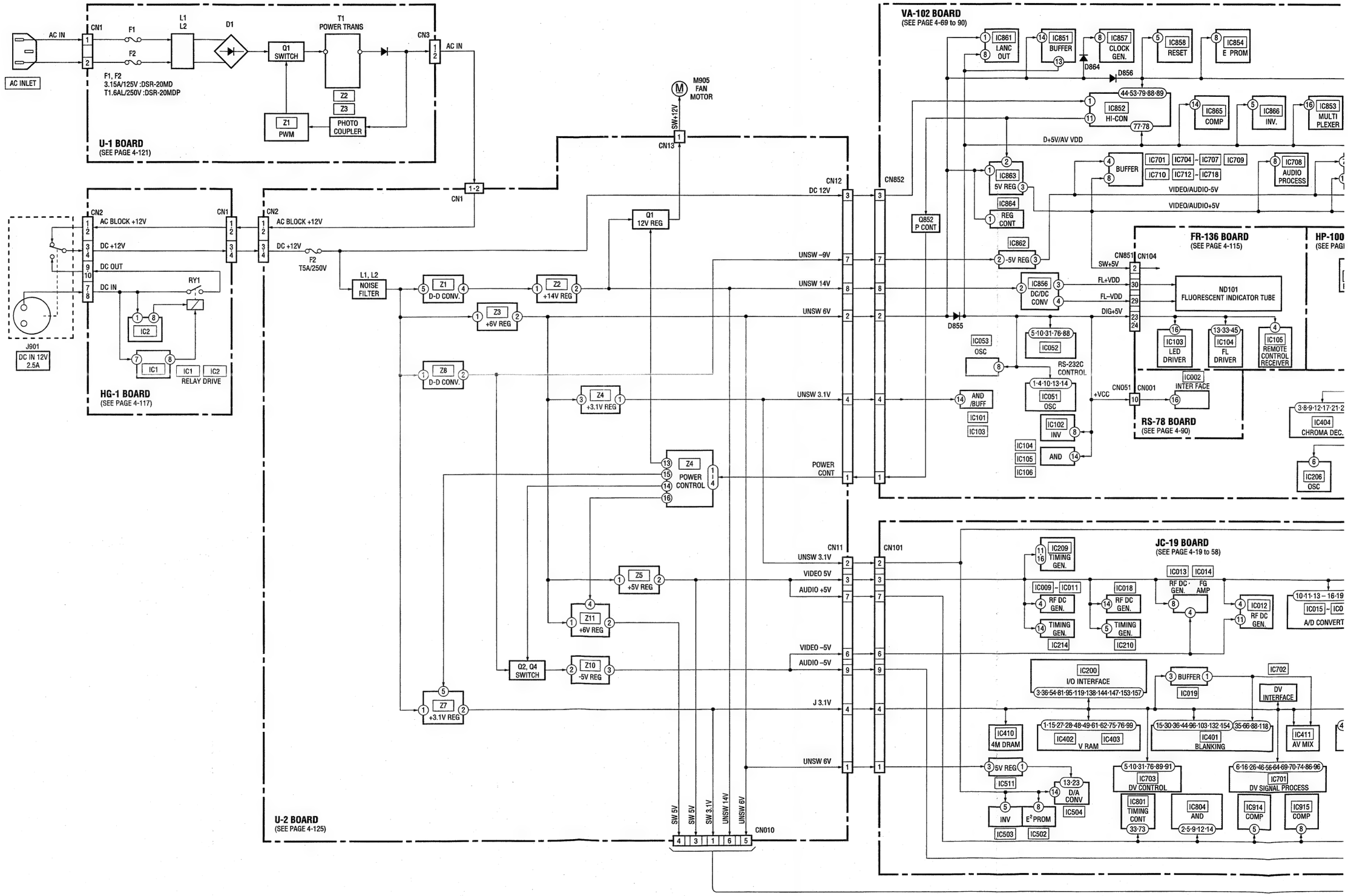

CN101
SX/V
UVIC GATE
UVIC SWIN
UVIC BUSY
XCS UVIC
MO SI
MO SO
MO SCK
MO RST
XCS MO
HI SI
HI SO
HI SCK
PB/XEE
OSD SCK
OSD SO
XCS OSD2
CN102
Y
CR
CB
Y
CR
CB
NPSA
NPSB
SGH
A
JC-19 BOARD
CN104
(SEE PAGE 3-5)
B
JC-19 BOARD
CN701
(SEE PAGE 3-6)
CN601
CN602
TPA
NTPA
TPB
NTPB
DV IN/OUT
IC101
IC102
IC103
IC104
IC105
AND GATE/INVERTER
D
JC-19 BOARD
CN103
(SEE PAGE 3-7)
IC106
AND GATE
REMOTE RS-232C
RS-78 BOARD
(SEE PAGE 4-90)
IC002
INTERFACE
DTR
DSR
RXD
TXD
CN001
FR-136 BOARD
(SEE PAGE 4-115)
X051
8MHz
CN051
IC051
IC053
OSC
X052
1.2288MHz
IC052
RS-232C CONTROL
IC104
FL DRIVER
J101 (2/2)
INPUT
CH-1
CH-2
OUTPUT
CH-1/3
CH-2/4
MONITOR
CH-1/3
CH-2/4
EXT
INT
SAME AS CH-1
CN101
L
R-CH
MONITOR L
EXT/INT SYNC
S101
RE-32 BOARD (1/2)
(SEE PAGE 4-90)
CN703
IC704
BUFFER
AUDIO PROCESS
IC708
IC715
BUFFER
Q710
MUTE
Q709
MUTE
IC716
BUFFER
IC711
AUDIO SELECTOR
IC706
BUFFER
IC702
AUDIO SELECTOR
IC701
BUFFER
CN701
L-CH
R-CH
L-CH
R-CH
(SAME AS L-CH)
C
JC-19 BOARD
CN831
(SEE PAGE 3-7)
IC705
IC707
IC709
IC710
IC713
IC714
IC717
IC718
FILTER
Q101
3V → 5V
JOG FIL ON
HP-100 BOARD
(SEE PAGE 4-101)
IC001
HP AMP
CN702
HP-L
CN001
R-CH
J001
PHONES
L REC VR
R REC VR
RV002
L REC LEVEL
RV003
R REC LEVEL
Q613
SYNC SEP
IC602
U VIC CONTROL
X601
3.58MHz
: DSR-20MD
4.43MHz
: DSR-20MDP
MO XPFAIL
XHI RST
IC858
RESET
IC854
E² PROM
IC857
CLOCK GEN.
X852
32.768kHz
X851
20MHz
X853
32.768kHz

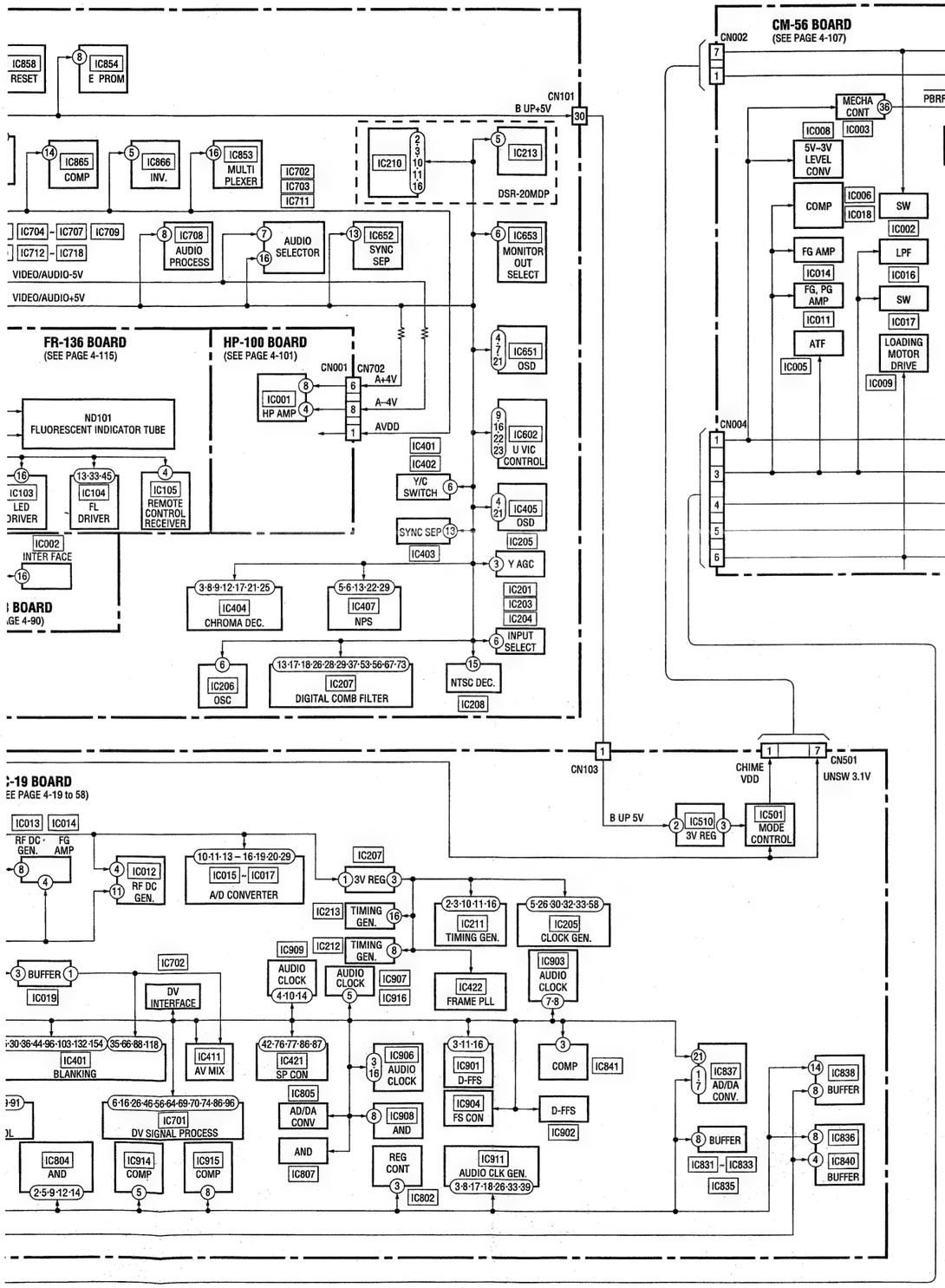
3-2. OVERALL BLOCK DIAGRAM 2

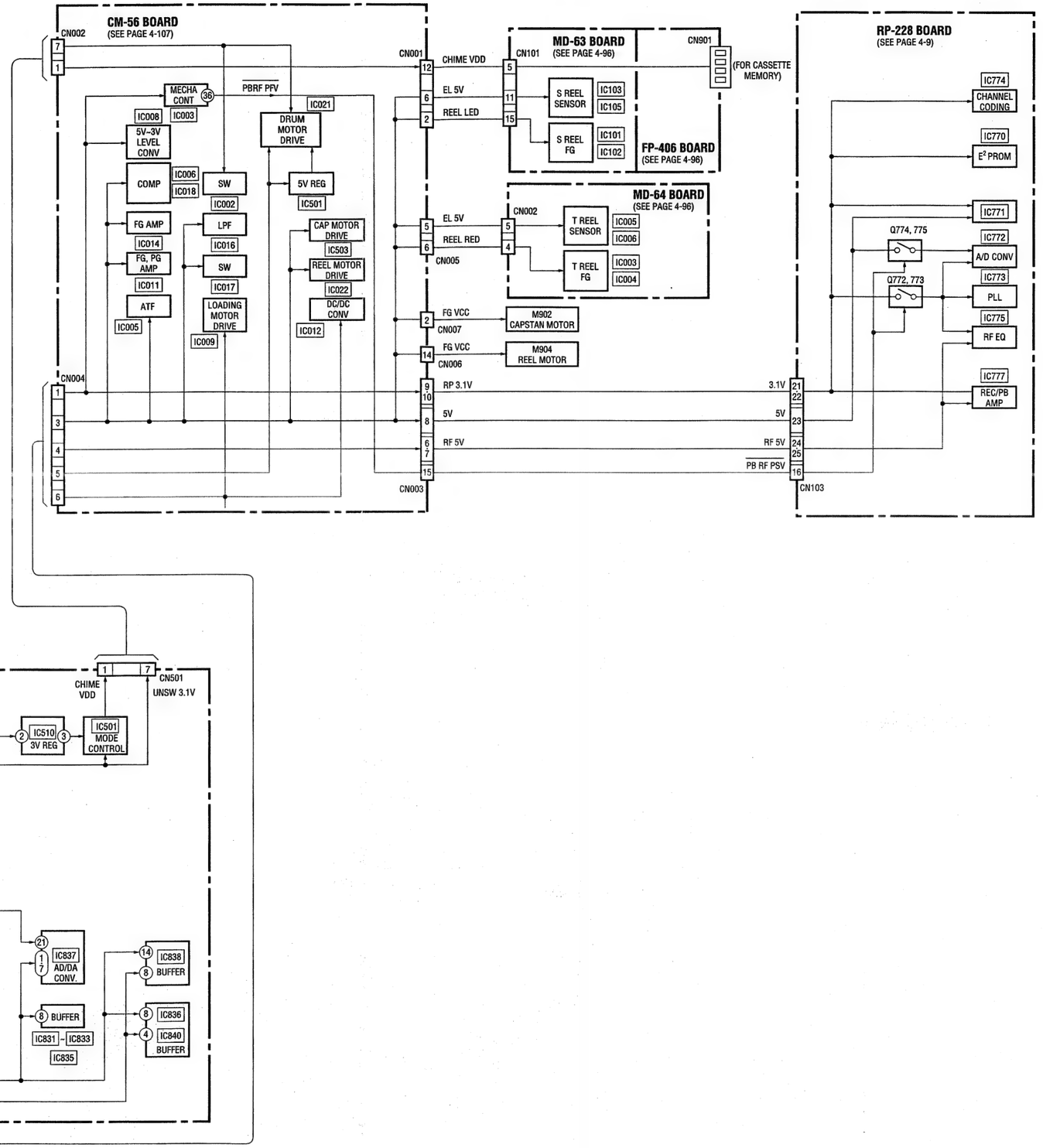



CM-56 BOARD
(SEE PAGE 4-107)
DRUM HEAD
CN771
X/Y ODD
X/Y EVEN
IC775
IC777
REC/PB AMP
RF EQ
CN103
PB RF
PBRF
MECHA SCK,DATA FROM MECHA,DATA TO MECHA
SP SI,SP SO,SP SCK
CN003
IC005
ATF
X001
20MHz
IC003
MECHA CONTROL
IC008
5V–3V LEVEL CONV.
IC011
FG, PG AMP
IC019
BUFFER
IC021
DRUM MOTOR DRIVE
IC503
CAP MOTOR DRIVE
IC016
LPF
IC012
DC/DC CONV.
IC022
REEL MOTOR DRIVE
IC014
FG AMP
CN008
DRUM U/V/W
FG,PG
CN007
FG OUT
CAP U/V/W
CN006
REEL U/V/W
FG OUT
MD-65 BOARD(1/2)
(SEE PAGE 4-96)
CN202
CN201
U,V,W
PG,FG
DRUM PG FG
M901 DRUM MOTOR
M902 CAPSTAN MOTOR
M904 REEL MOTOR
CAP FG
REEL FG
MD-64 BOARD (SEE PAGE 4-96)
CN005
CC DOWN SW
S EL OUT
S T REEL FG
L T REEL FG
TOP SENS
CN002
S002 (CC DOWN)
T ELETEN
IC005
IC006
S T REEL FG
IC003
L T REEL FG
IC004
Q101 TAPE END SENSOR
IC018
COMP
IC017
IC006
CN001
S S REEL FG
L S REEL FG
END SENS
TAPE LED
T EL OUT
REC PROOF
CHIME SDA
CHIME SCK
C IN
C OUT
MD-63 BOARD (SEE PAGE 4-96)
CN101
S S REEL FG
IC102
L S REEL FG
IC101
TAPE LED
Q102 TAPE END SENSOR
S ELETEN
IC103
IC105
REC PROOF
CN901
(FOR CASSETTE MEMORY)
C IN
S101 (C OUT)
FP-406 BOARD
(SEE PAGE 4-96)
IC002
AND
IC009
LOADING MOTOR DRIVE
CN008
LM LOARD /UNLOAD
MODE SW A-D
CN202
CN203
M903 LOADING MOTOR
CN204
MODE SW
MD-65 BOARD(2/2)
(SEE PAGE 4-96)
C IN
CHIME SDA
CHIME SCK
CN002
IC840
BUFF
A. PB. L
A. PB. R
IC834
EMPHASIS
A. REC. L
IC831
A. REC. R
IC833
CN831
C
VA-102 BOARD
CN701
(SEE PAGE 3-4)
IC904 (2/2)
FS CON
X501
20MHz
X502
32.768kHz
X422
27MHz
IC422 (1/2)
FRAME PLL
TRKD, FLTD
IC421 (1/2)
SP CON
SGH, SCCK
CK135, SCOE
X421
20MHz
MO RST
MO SI, SO, SCK
IC501
MODE CONTROL
IC502
E² PROM
OSDSO S X/V, HI SCK, HI SO, HI SI, XCS MO, MORST, PB/XEE
OSD SCK, XCS UVIC, UVIC BUSY, UVIC SWIN, UVIC GATE, XCS OSD2
IC504
D/A CONV
CN103
D
VA-102 BOARD
CN101
(SEE PAGE 3-4)
X HI RST, MO XPFAIL
C IN
CHIME SDA
CHIME SCK
CN501

3-3. OVERALL BLOCK DIAGRAM 3

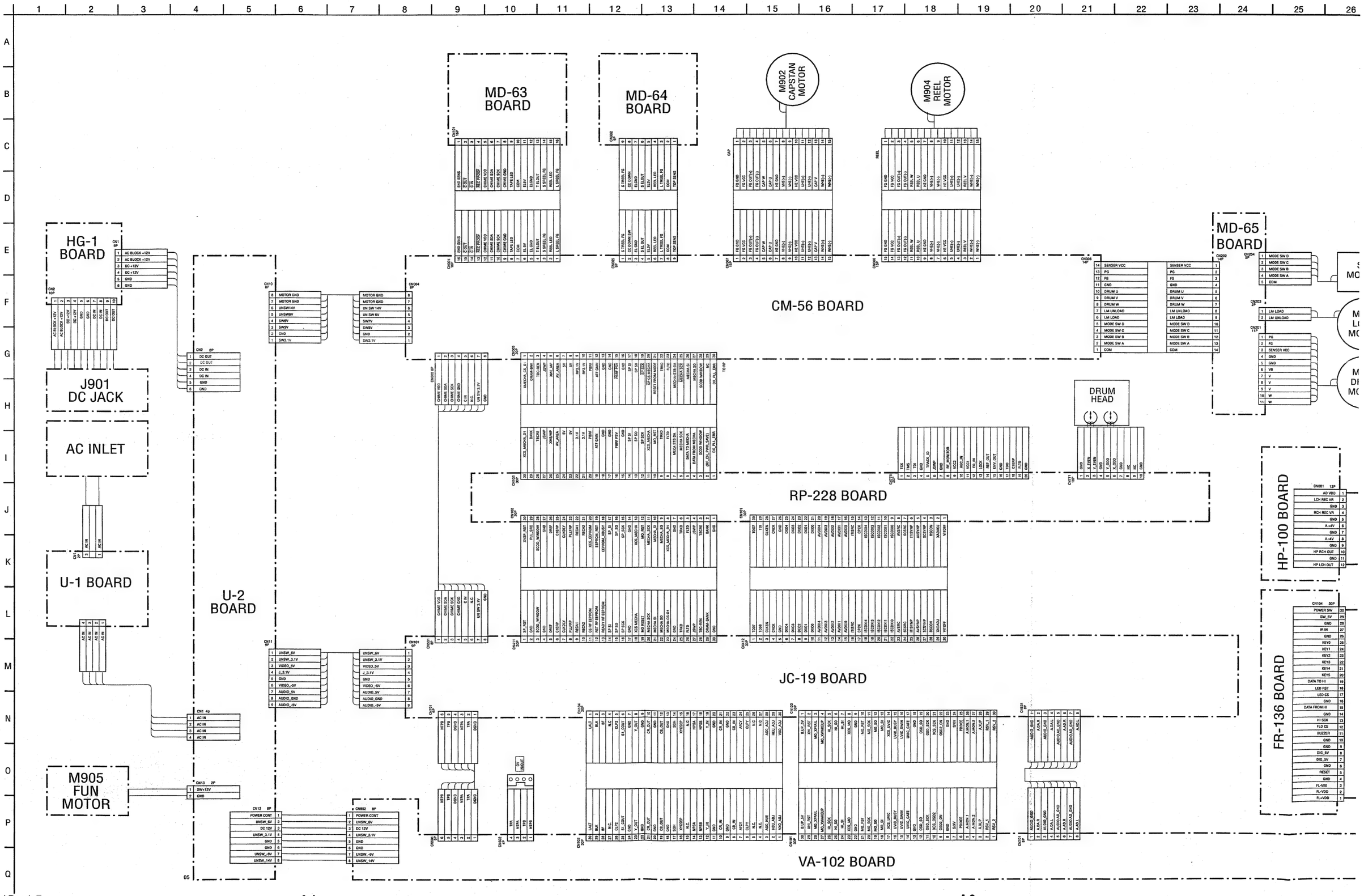


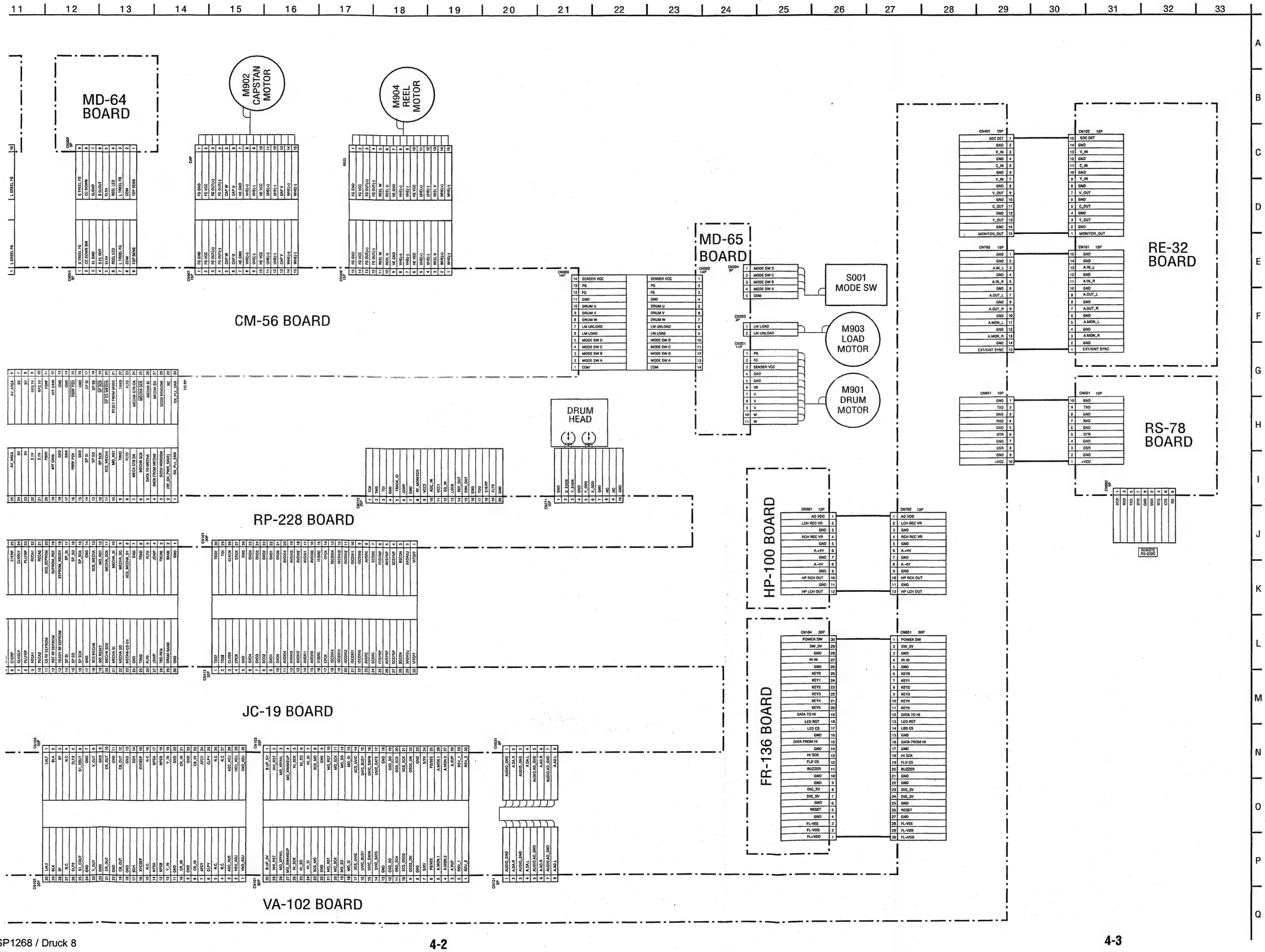

IC858 RESET
IC854 E PROM
CN101
B UP+5V
30
IC865 COMP
IC866 INV.
IC853 MULTI PLEXER
IC702
IC703
IC711
IC210
IC213
DSR-20MDP
IC704 - IC707 IC709
IC712 - IC718
IC708 AUDIO PROCESS
AUDIO SELECTOR
IC652 SYNC SEP
IC653 MONITOR OUT SELECT
VIDEO/AUDIO-5V
VIDEO/AUDIO+5V
FR-136 BOARD
(SEE PAGE 4-115)
HP-100 BOARD
(SEE PAGE 4-101)
CN001
CN702
A+4V
A-4V
AVDD
IC001 HP AMP
IC651 OSD
ND101 FLUORESCENT INDICATOR TUBE
IC602 U VIC CONTROL
IC401
IC402
Y/C SWITCH
IC405 OSD
IC103 LED DRIVER
IC104 FL DRIVER
IC105 REMOTE CONTROL RECEIVER
SYNC SEP
IC205
IC403
IC002 INTER FACE
Y AGC
IC404 CHROMA DEC.
IC407 NPS
IC201
IC203
IC204
INPUT SELECT
IC206 OSC
IC207 DIGITAL COMB FILTER
NTSC DEC.
IC208
CN103
CHIME VDD
CN501
UNSW 3.1V
B UP 5V
IC510 3V REG
IC501 MODE CONTROL
IC013 IC014
RF DC GEN.
FG AMP
IC012 RF DC GEN.
IC015 ~ IC017 A/D CONVERTER
IC207
3V REG
IC213 TIMING GEN.
IC211 TIMING GEN.
IC205 CLOCK GEN.
IC212 TIMING GEN.
IC909 AUDIO CLOCK
IC907
IC916
IC422 FRAME PLL
IC903 AUDIO CLOCK
IC702
BUFFER
IC019
DV INTERFACE
IC401 BLANKING
IC411 AV MIX
IC421 SP CON
IC805 AD/DA CONV
IC906 AUDIO CLOCK
IC908 AND
IC901 D-FFS
IC904 FS CON
COMP
IC841
D-FFS
IC902
IC837 AD/DA CONV.
IC838 BUFFER
IC836
IC840 BUFFER
IC831 ~ IC833
IC835
IC701 DV SIGNAL PROCESS
IC804 AND
IC914 COMP
IC915 COMP
AND
IC807
REG CONT
IC802
IC911 AUDIO CLK GEN.


CM-56 BOARD
(SEE PAGE 4-107)
CN002
CN001
CN004
CN003
MECHA CONT
IC008
IC003
PBRF PFV
IC021
DRUM MOTOR DRIVE
5V-3V LEVEL CONV
COMP
IC006
IC018
SW
IC002
5V REG
IC501
FG AMP
IC014
LPF
IC016
CAP MOTOR DRIVE
IC503
FG, PG AMP
IC011
SW
IC017
REEL MOTOR DRIVE
IC022
ATF
IC005
LOADING MOTOR DRIVE
IC009
DC/DC CONV
IC012
CHIME VDD
EL 5V
REEL LED
MD-63 BOARD
(SEE PAGE 4-96)
CN101
CN901
(FOR CASSETTE MEMORY)
S REEL SENSOR
IC103
IC105
S REEL FG
IC101
IC102
FP-406 BOARD
(SEE PAGE 4-96)
MD-64 BOARD
(SEE PAGE 4-96)
CN002
EL 5V
REEL RED
CN005
T REEL SENSOR
IC005
IC006
T REEL FG
IC003
IC004
FG VCC
CN007
M902 CAPSTAN MOTOR
FG VCC
CN006
M904 REEL MOTOR
RP 3.1V
5V
RF 5V
PB RF PSV
3.1V
5V
RF 5V
RP-228 BOARD
(SEE PAGE 4-9)
CN103
IC774 CHANNEL CODING
IC770 E² PROM
IC771
IC772 A/D CONV
IC773 PLL
IC775 RF EQ
Q774, 775
Q772, 773
IC777 REC/PB AMP

SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM



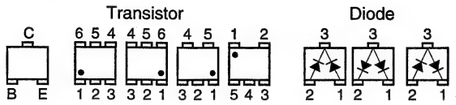

11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
A B C D E F G H I J K L M N O P Q
MD-64 BOARD
M902 CAPSTAN MOTOR
M904 REEL MOTOR
CM-56 BOARD
MD-65 BOARD
S001 MODE SW
M903 LOAD MOTOR
M901 DRUM MOTOR
DRUM HEAD
RE-32 BOARD
RS-78 BOARD
RP-228 BOARD
HP-100 BOARD
FR-136 BOARD
JC-19 BOARD
VA-102 BOARD
REMOTE RS-232C

4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block)

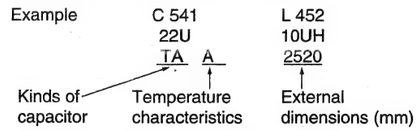
For printed wiring boards:

- ▒▒▒ : Pattern from the side which enables seeing. (The other layers' pattern are not indicated)
- Circled numbers refer to waveforms.
- Through hole is omitted.
- There are few cases that the part printed on diagram isn't mounted in this model.
- Chip parts.



For schematic Diagram:

- All capacitors are in μF unless otherwise noted. pF: μμF 50V or less are not indicated except for electrolytics and tantalums.
- Chip resistors are 1/10 W unless otherwise noted. kΩ : 1000Ω, MΩ : 1000kΩ.
- Caution when replacing chip parts. New parts must be attached after removal of chip. Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- Some chip part will be indicated as follows.



- Constants of resistors, capasitors, ICs and etc with XX indicate that they are not used. In such cases, the unused circuits may be indicated.
- Parts with ★ differ according to the model/destination. Refer to the mount table for each function.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- Signal name
  XEDIT → $\overline{\text{EDIT}}$ PB/XREC → PB/$\overline{\text{REC}}$
- : nonflammable resistor.
- : fusible resistor.
- : panel designation.
- : B+ Line.*
- : B– Line.*
- : IN/OUT direction of B line (+, –).*
- : adjustment for repair.*
- Circled numbers refer to waveforms.*

Measuring conditions voltege and waveform:

- Voltages and waveforms are measured between the measurement points and graound when color bar signal input.They are reference values and reference waveforms.* (VOM of DC 10 M Ω input impedance is used)
- Voltage values change depending upon input impedance of VOM used.

* Indicated by the color red.

Note:	**Note:**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

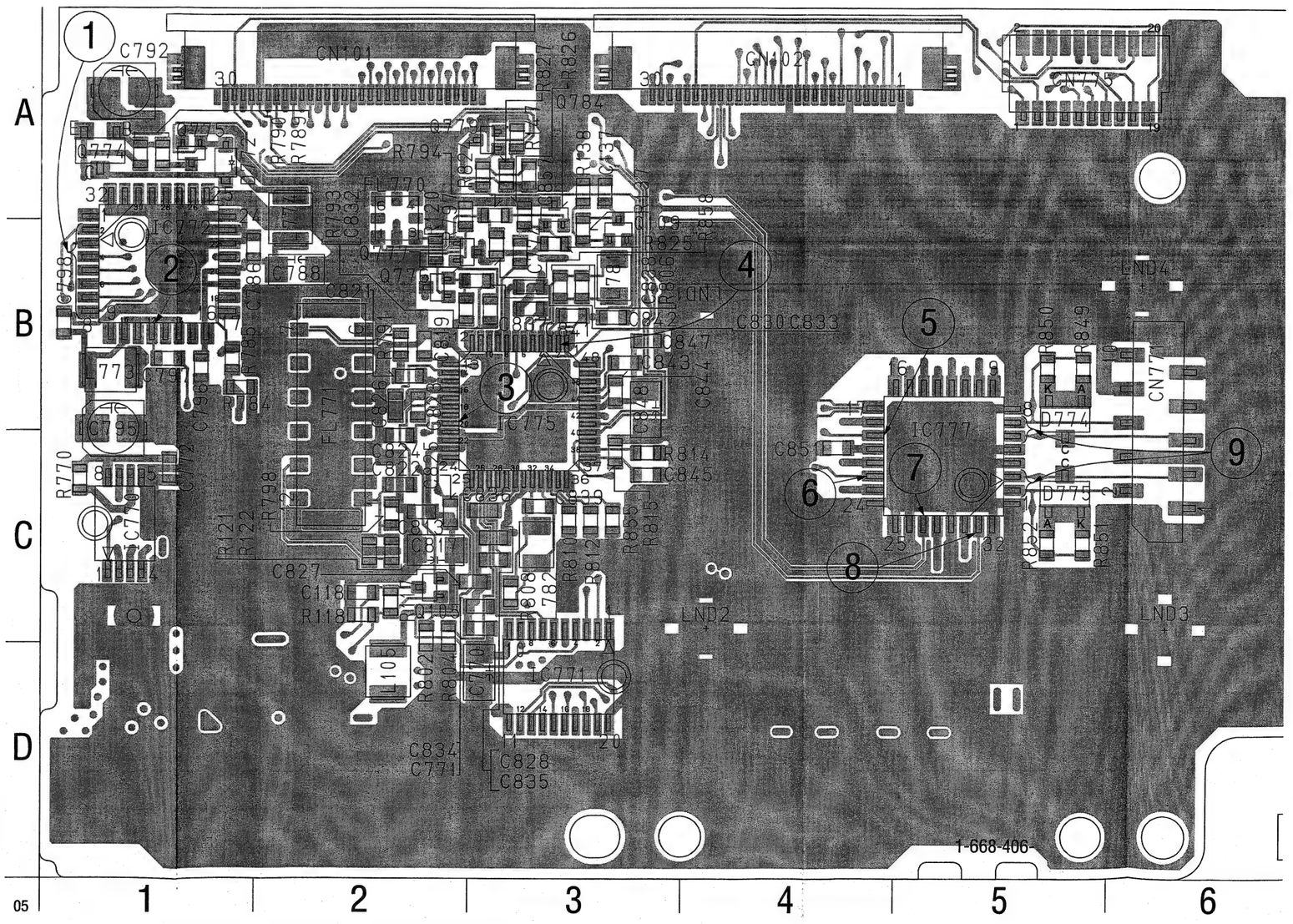
RP-228 BOARD (SIDE A)

CN101	A-2
CN102	A-4
CN771	B-6
CN775	A-5
D772	A-1
D774	B-5
D775	C-5
IC770	C-1
IC771	D-3
IC772	B-1
IC775	B-3
IC777	C-5
Q105	C-2
Q109	B-3
Q774	A-1
Q775	A-1
Q776	B-2
Q777	B-2
Q779	A-3
Q784	B-3

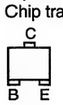
RP-228 (REC/PB AMP) PRINTED WIRING BOARD
– Ref. No.: RP-228 board; 3,000 series –

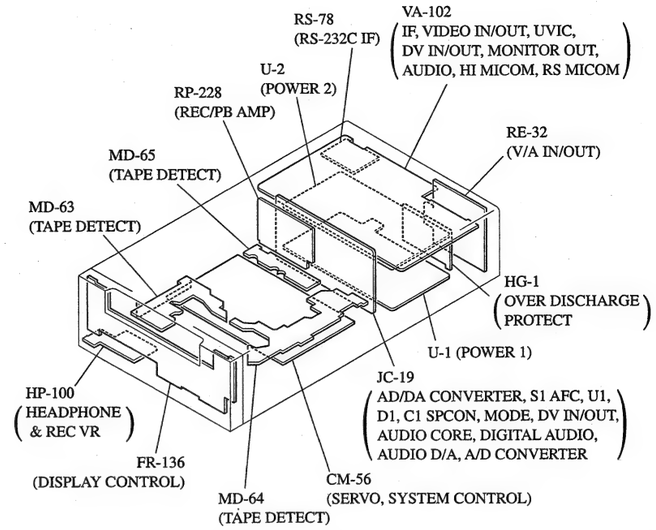
- **For Printed Wiring**
- RP-228 board is si of layers 2 to 5 hav
- There are few case is printed on this d
- Chip transistor

RP-228 BOARD (SIDE A)



- **For Printed Wiring Board.**
- RP-228 board is six-layer print board. However, the patterns of layers 2 to 5 have not been included in the diagram.
- There are few cases that the part isn't mounted in this model is printed on this diagram.
- Chip transistor

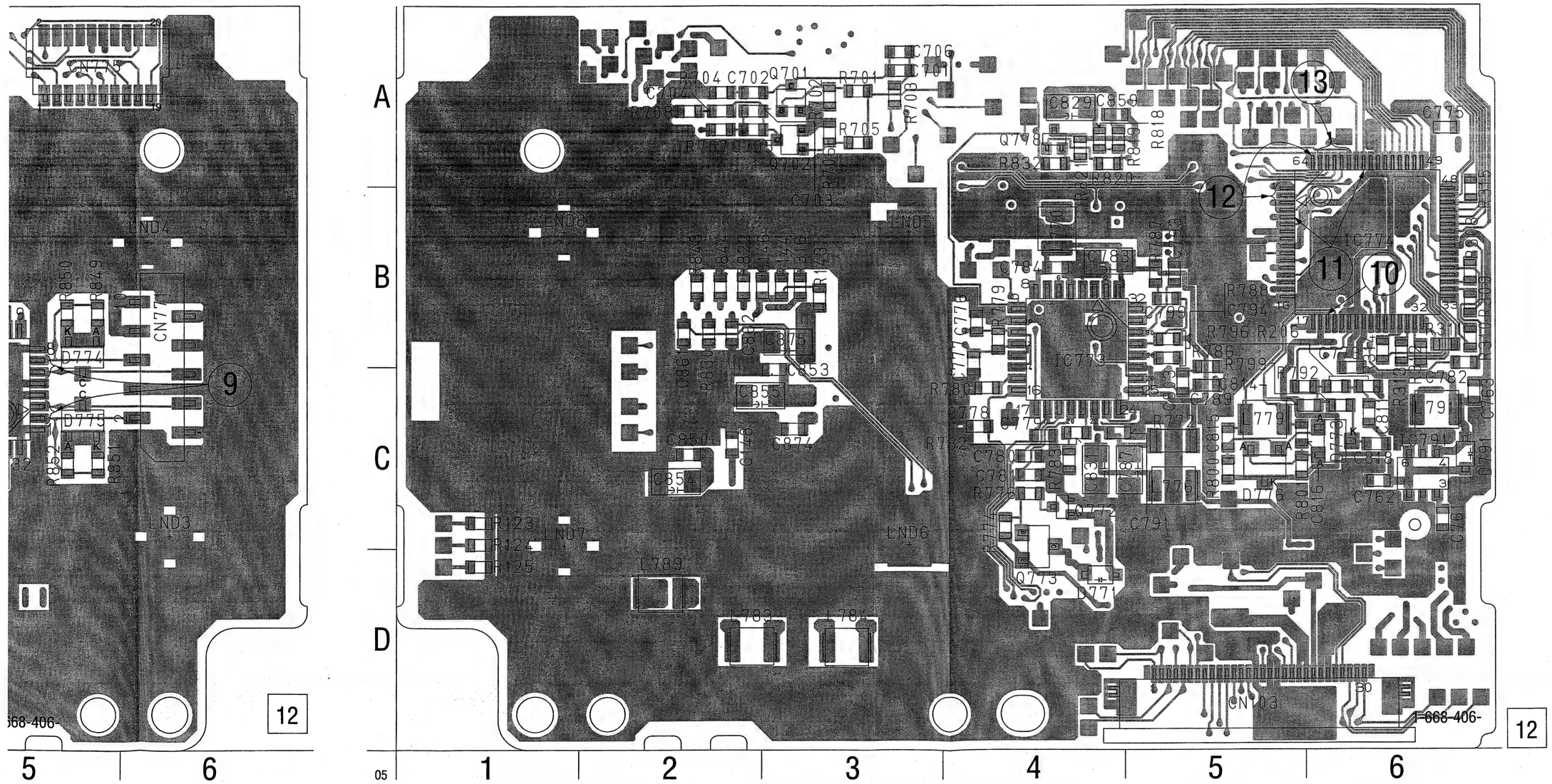


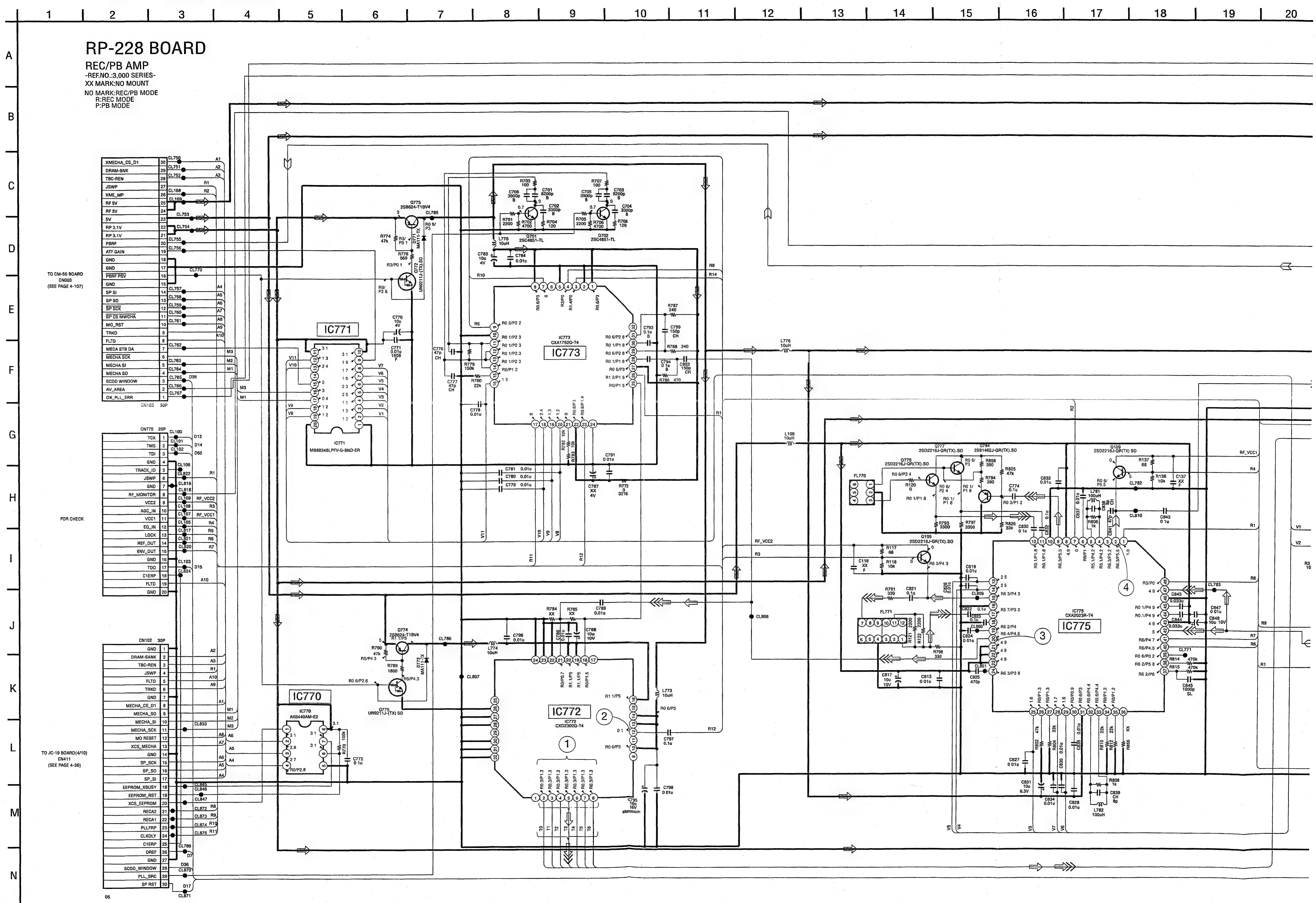


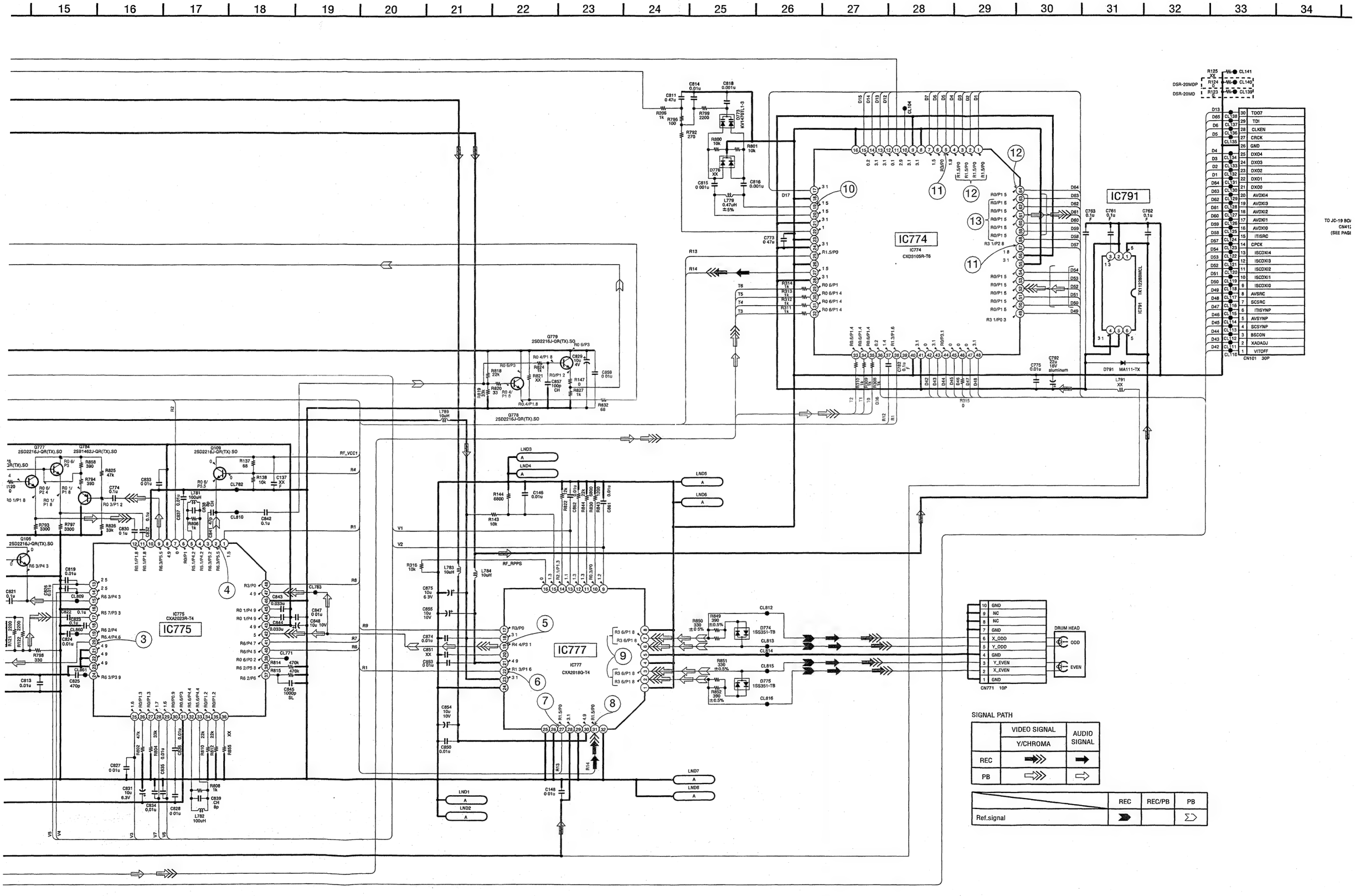
RP-228 BOARD (SIDE B)

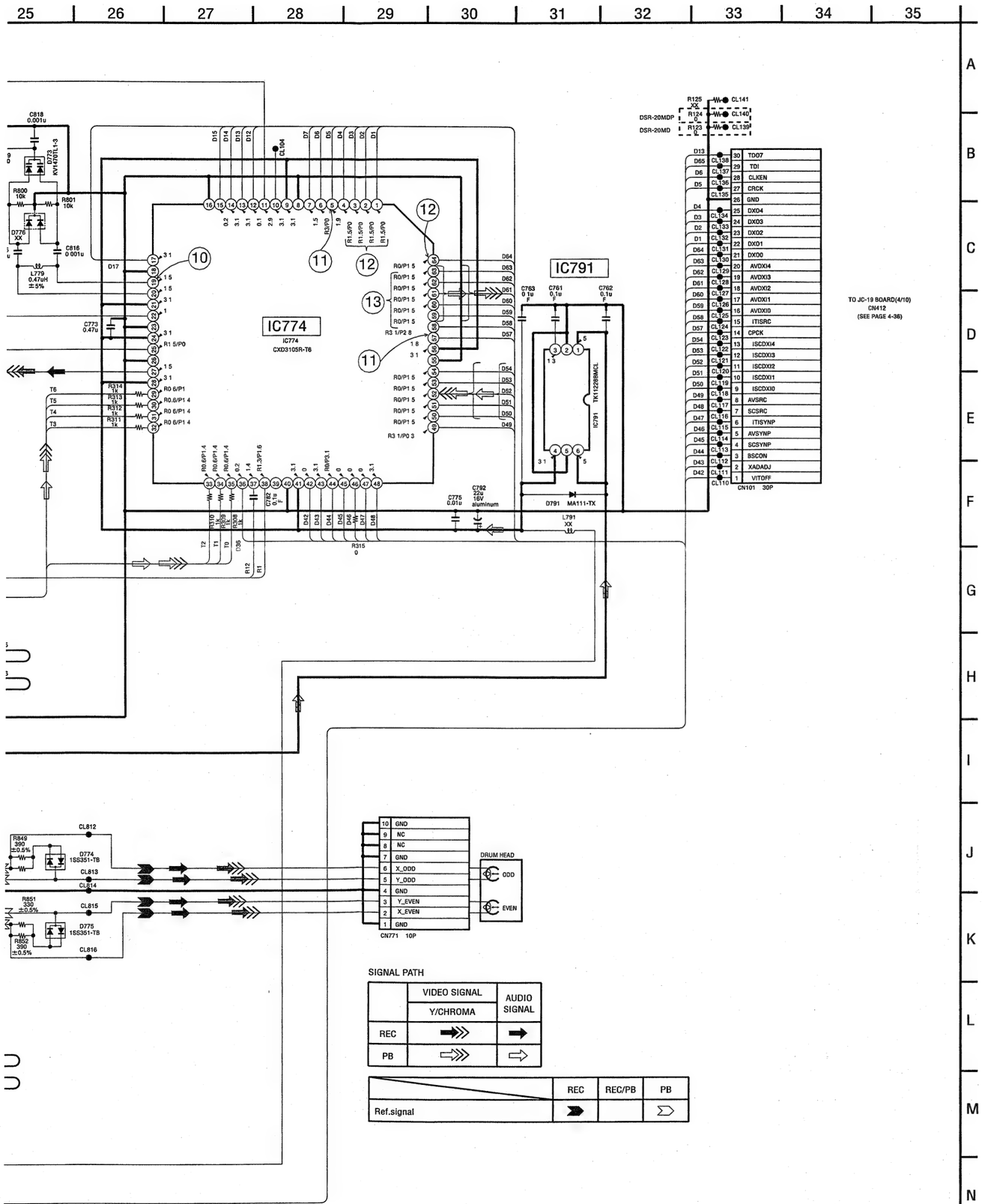
CN103	D-5
D771	D-4
D773	C-6
IC773	B-4
IC774	B-6
Q701	A-3
Q702	A-3
Q772	C-4
Q773	D-4
Q778	A-4

RP-228 BOARD (SIDE B)




RP-228 BOARD
REC/PB AMP
-REF.NO.:3,000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R:REC MODE
P:PB MODE
TO CM-56 BOARD
CN003
(SEE PAGE 4-107)
FOR CHECK
TO JC-19 BOARD(4/10)
CN411
(SEE PAGE 4-38)
IC771
IC773
CXA1762Q-T4
IC770
IC772
CXD2302Q-T4
IC775
CXA2023R-T4


IC774
IC774
CXD3105R-T6
IC791
IC775
IC775
CXA2023R-T4
IC777
IC777
CXA2018Q-T4
Q779
2SD2216J-QR(TX).SO
Q778
2SD2216J-QR(TX).SO
Q777
2SD2216J-QR(TX).SO
Q784
2SB1462J-QR(TX).SO
Q109
2SD2216J-QR(TX).SO
Q105
2SD2216J-QR(TX).SO
D773
KV1470TL1-3
D776
XX
D774
1SS351-TB
D775
1SS351-TB
D791
MA111-TX
L791
XX
TK11298MCL
DSR-20MDP
DSR-20MD
CN101 30P
CN771 10P
DRUM HEAD
ODD
EVEN
TO JC-19 BO
CN41
(SEE PAGE
SIGNAL PATH
VIDEO SIGNAL
Y/CHROMA
AUDIO SIGNAL
REC
PB
REC
REC/PB
PB
Ref.signal

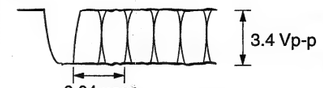


SIGNAL PATH

	VIDEO SIGNAL	AUDIO SIGNAL
	Y/CHROMA	
REC	➡	➡
PB	⇨	⇨

	REC	REC/PB	PB
Ref.signal	➡		⇨

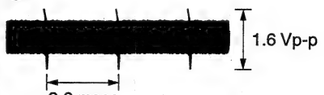
RP-228 BOARD

❶


IC772 ② – ⑧ PB

❷

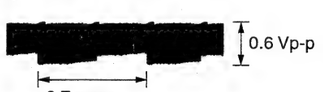

IC772 ⑫ PB

❸


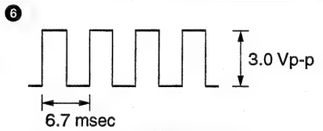
IC775 ⑳ PB

❹

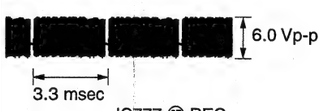

IC775 ② PB

❺


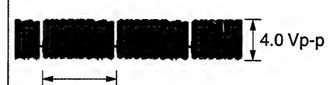
IC777 ⑲ PB

❻


IC777 ㉒ REC/PB

❼


IC777 ㉗ REC

❽


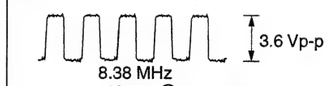
IC777 ㉛ REC

❾

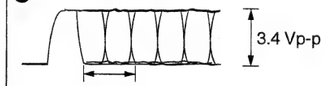

IC777 ②, ③, ⑥, ⑦ REC

❿

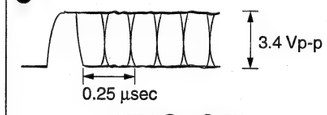

IC774 ⑲ REC/PB

⓫


IC774 ⑤ REC/PB
IC774 ㊼ PB

⓬


IC774 ① – ④, ㊹ REC

⓭


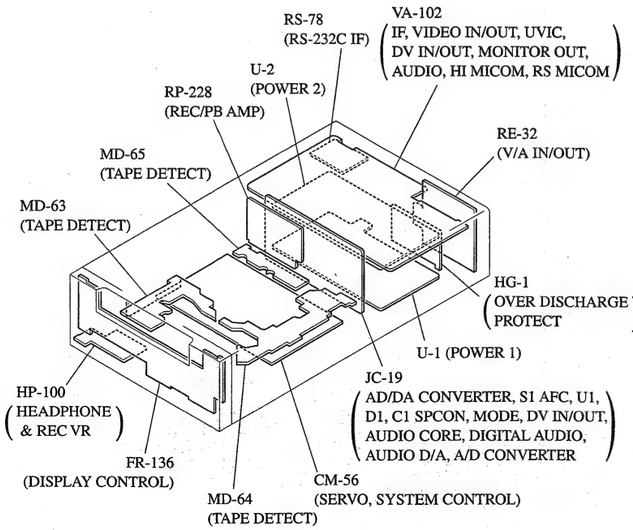
IC774 ㊾ – ㊸ PB

JC-19 (AD/DA CONVERTER, S1 AFC, U1, D1, C1 SPCON, MODE, DV IN/OUT, AUDIO CORE, DIGITAL AUDIO, AUDIO D/A, A/D CONVERTER) PRINTED WIRING BOARD

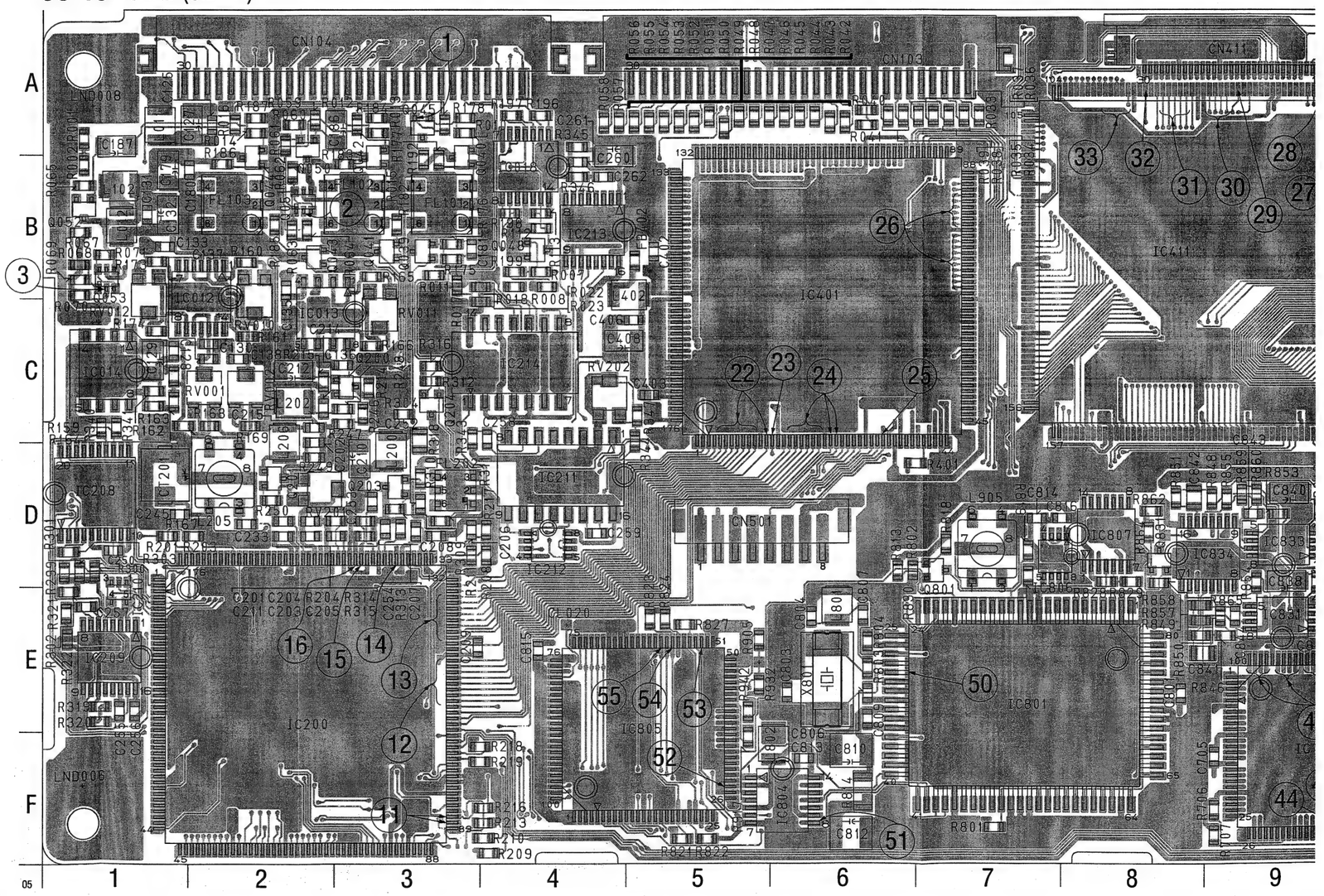
– Ref. No.: JC-19 board; 2,000 series –

JC-19 BOARD (SIDE A)

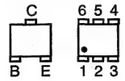
CN103	A-6
CN104	A-3
CN411	A-9
CN412	A-10
CN501	D-5
CN831	D-10
IC012	C-2
IC013	C-2
IC014	C-1
IC018	B-4
IC019	C-11
IC200	E-2
IC209	E-1
IC210	E-1
IC211	D-4
IC212	D-4
IC213	B-4
IC214	C-4
IC401	B-6
IC410	B-10
IC411	B-8
IC701	F-9
IC702	E-10
IC801	E-7
IC804	F-6
IC805	E-4
IC807	D-8
IC831	E-9
IC833	D-9
IC840	D-11
Q039	B-3
Q040	B-3
Q041	B-3
Q042	B-3
Q043	B-2
Q044	B-2
Q045	A-3
Q048	B-4
Q050	A-2
Q051	B-2
Q052	B-1
Q053	B-1
Q200	C-3
Q201	D-2
Q801	D-7



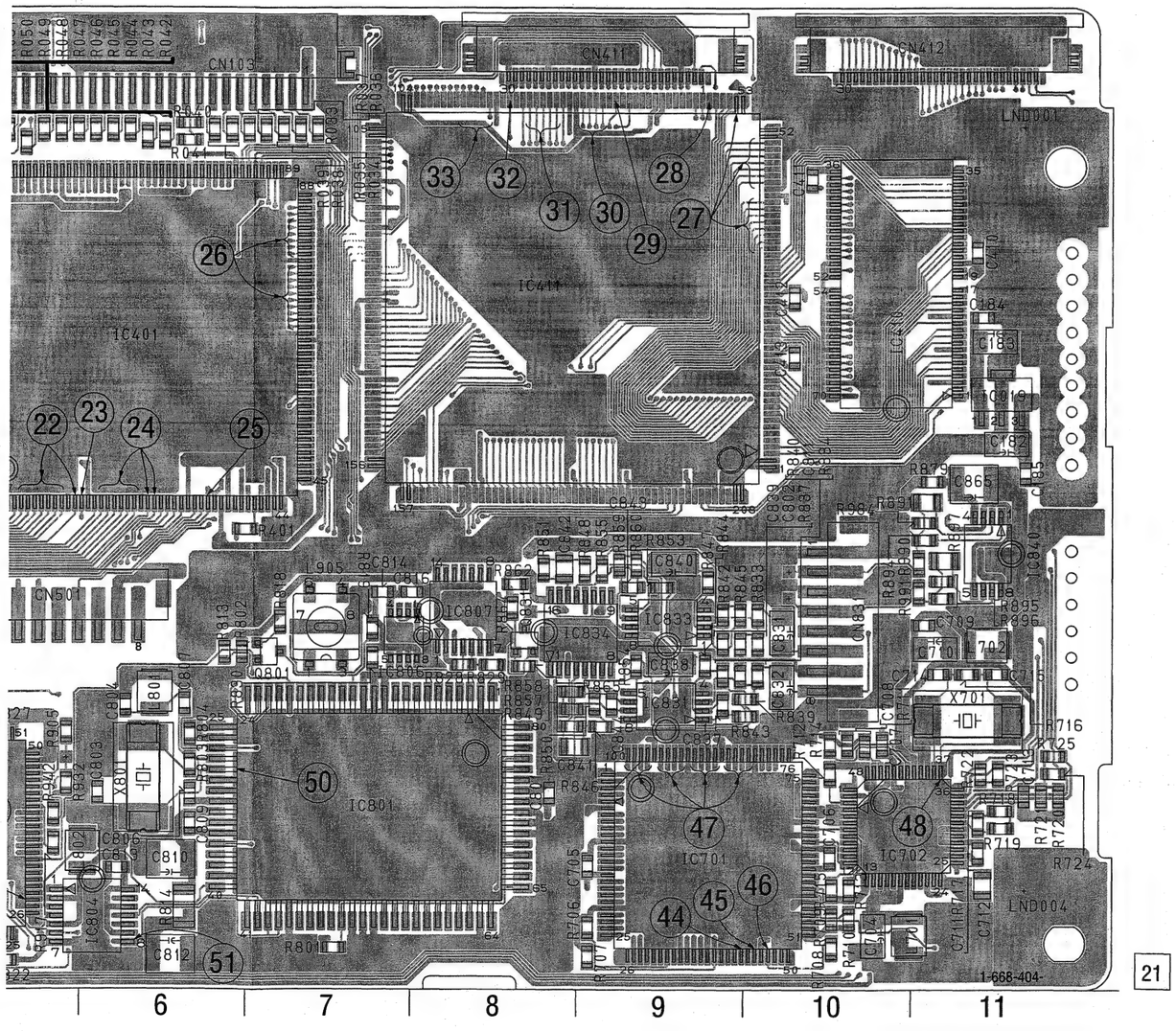
JC-19 BOARD (SIDE A)



- **For Printed Wiring Board.**
- JC-19 board is six-layer print board. However, the patterns of layers 2 to 5 have not been included in the diagram.
- There are few cases that the part isn't mounted in this model is printed on this diagram.
- Chip transistor



JC-19 BOARD (SIDE B)

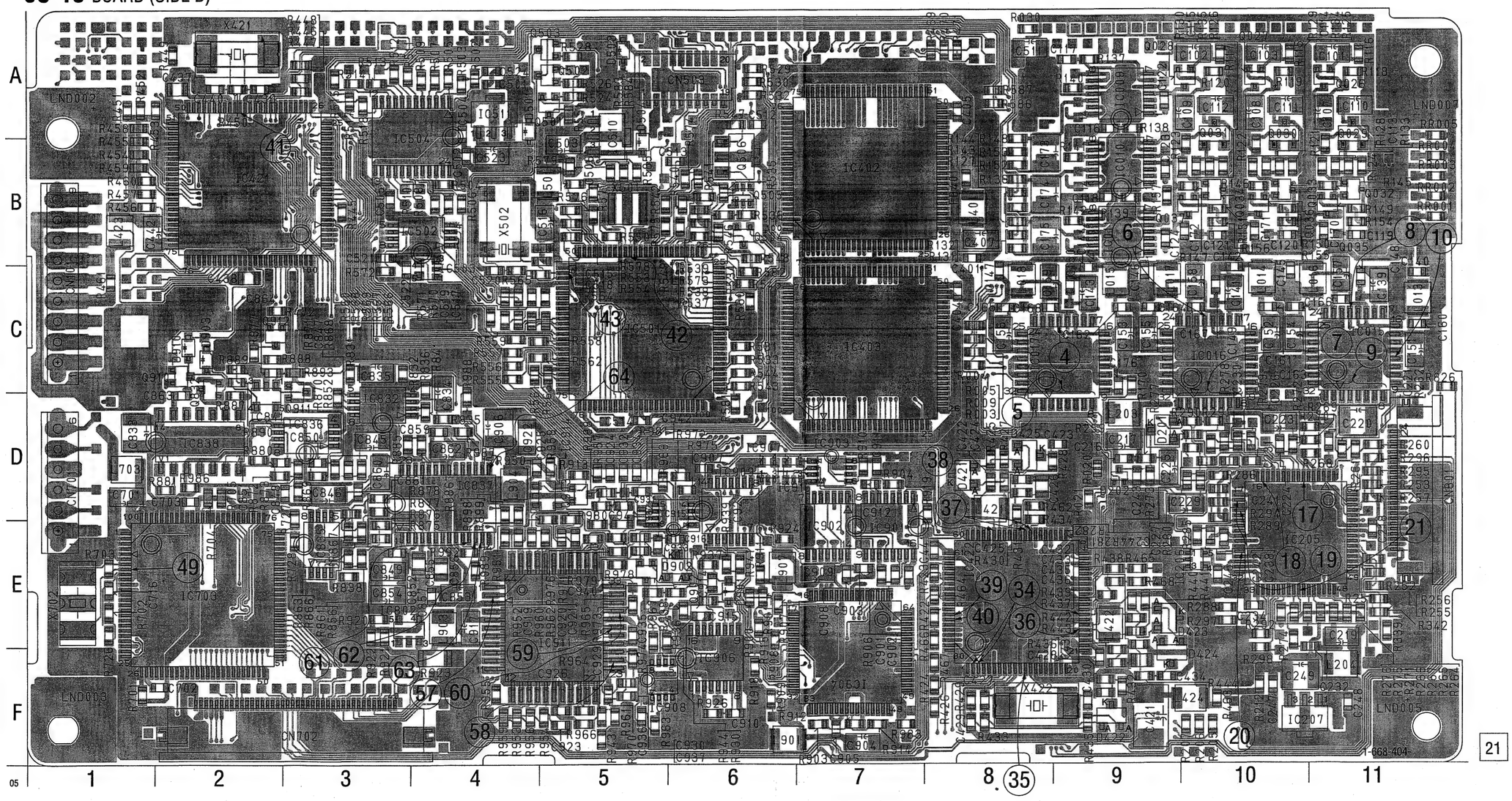


DIO, AUDIO D/A, A/D CONVERTER

SP1268 / Druck 15

e patterns of
ram.
in this model

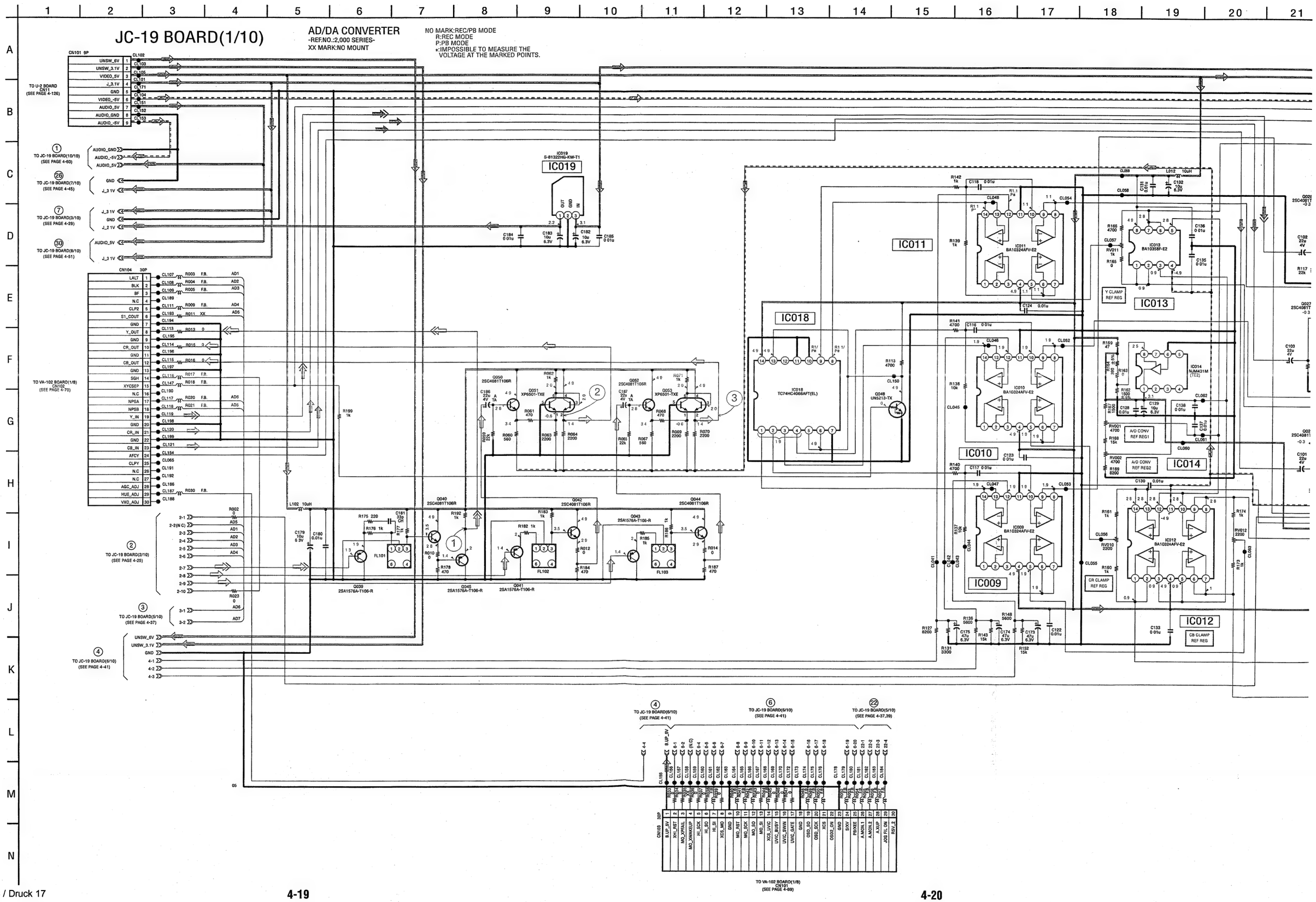
JC-19 BOARD (SIDE B)

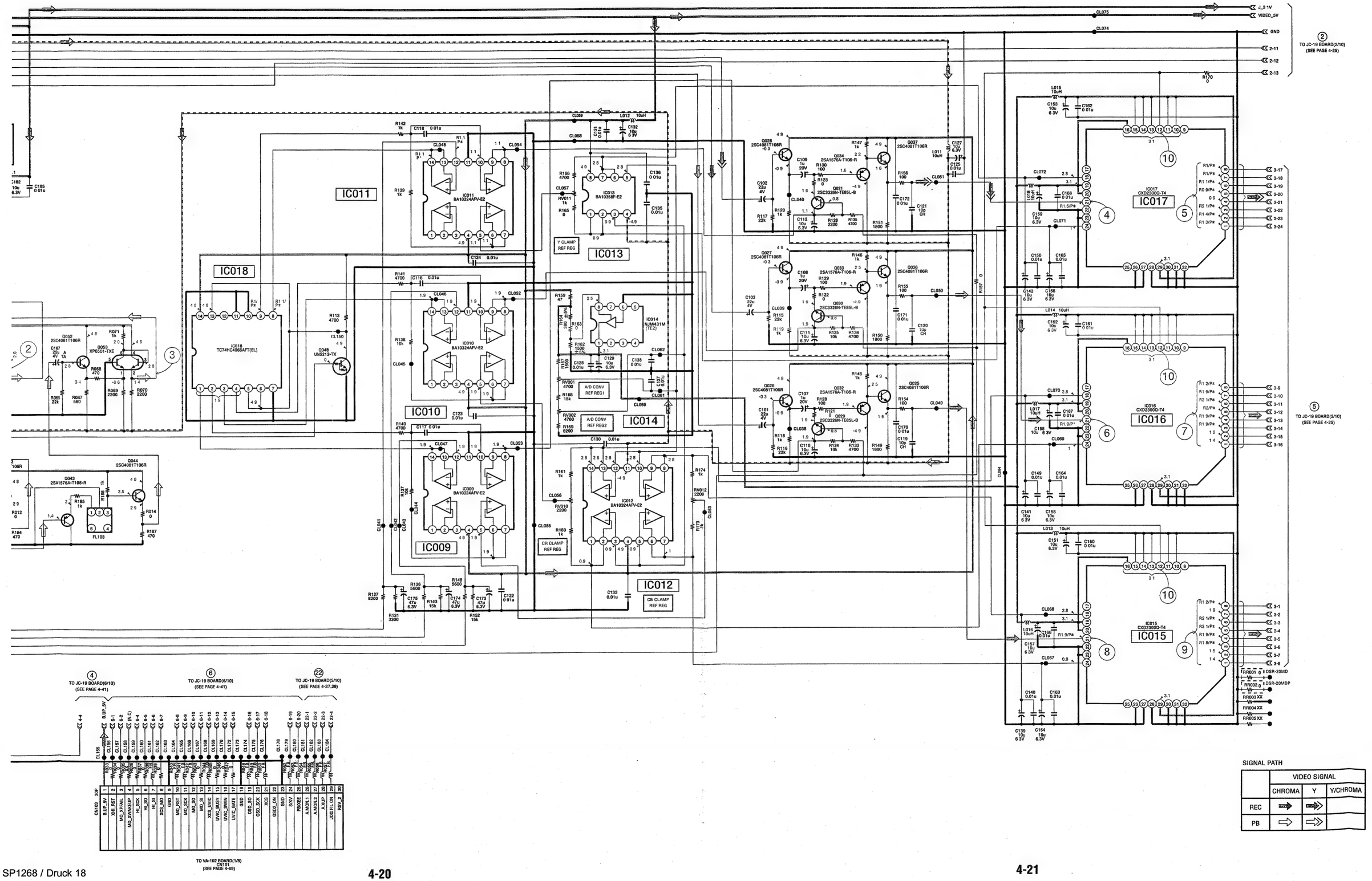


JC-19 BOARD (SIDE B)

CN101	B-1
CN503	A-6
CN701	D-1
D201	D-9
D421	D-8
D422	F-9
D423	E-9
D424	E-9
D425	D-8
D501	A-4
D503	A-5
D504	B-5
D901	E-6
D902	E-6
D903	C-2
D910	C-2
IC009	A-9
IC010	B-9
IC011	B-9
IC015	C-11
IC016	C-10
IC017	C-9
IC205	E-10
IC206	E-10
IC207	F-10
IC402	B-7
IC403	C-7
IC421	B-2
IC422	E-8
IC501	C-5
IC502	B-4
IC503	B-4
IC504	A-4
IC510	A-5
IC511	A-4
IC703	E-2
IC802	E-3
IC832	D-3
IC835	E-3
IC836	D-3
IC837	D-4
IC838	D-2
IC841	D-2
IC901	D-7
IC902	D-7
IC903	D-7
IC904	F-7
IC906	F-6
IC907	D-6
IC908	F-5
IC909	D-6
IC911	E-5
IC914	D-5
IC915	D-6
IC916	D-6
Q026	A-11
Q027	A-10
Q028	A-10
Q029	A-11
Q030	A-10
Q031	A-10
Q032	B-11
Q033	B-10
Q034	B-10
Q035	B-11
Q036	B-10
Q037	B-10
Q501	A-5
Q502	A-5
Q504	B-6
Q505	B-6
Q506	B-6
Q832	C-2
Q902	E-6
Q903	D-5
Q910	C-2
Q911	C-3

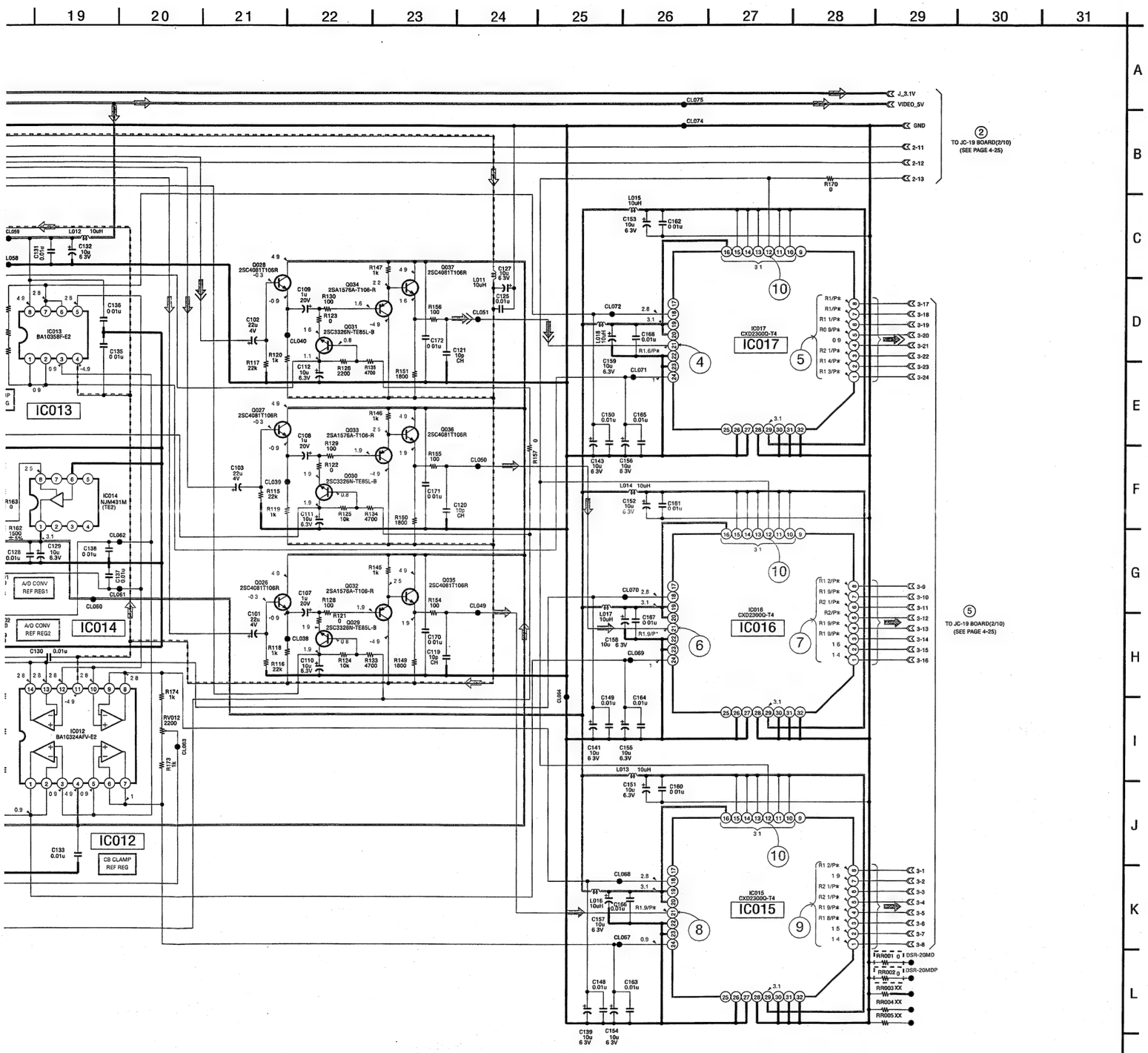
JC-19 (AD/DA CONVERTER) SCHEMATIC DIAGRAM





SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	⇒	⇒	
PB	⇨	⇨	



SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	⇨	⇨	
PB	⇨	⇨	

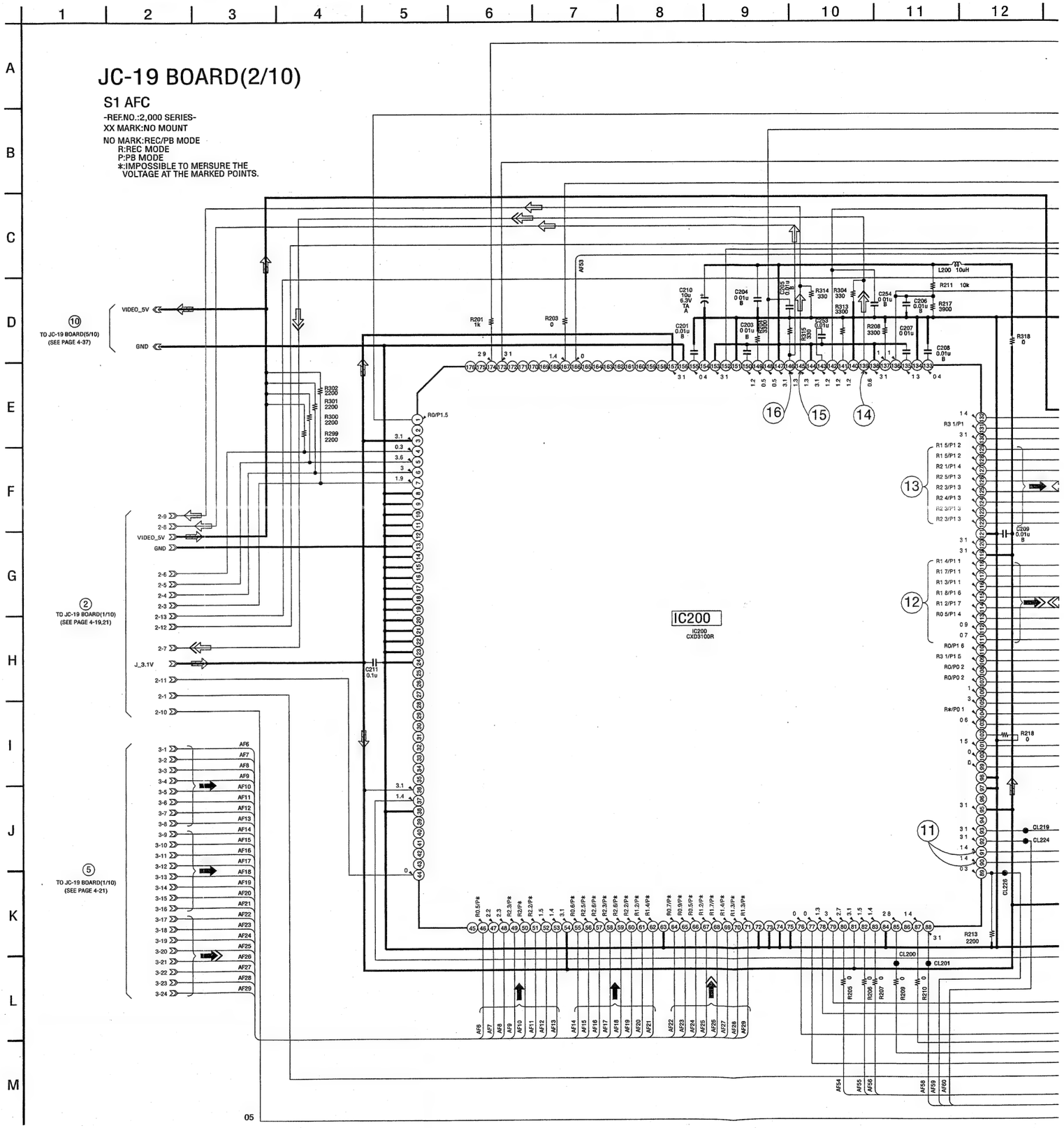
JC-19 BOARD (1/10)

❶ 0.54 Vp-p, H Q045 Ⓔ PB	❻ 0.9 Vp-p, H IC016 ㉑ REC
❷ 0.54 Vp-p, H Q051 ② PB	❼ 3.6 Vp-p, 0.15 µsec IC016 ① – ⑧ REC
❸ 0.39 Vp-p, H Q053 ② PB	❽ 0.8 Vp-p, H IC015 ㉑ REC
❹ 2.0 Vp-p, H IC017 ㉑ REC	❾ 3.6 Vp-p, 0.15 µsec IC015 ① – ⑧ REC
❺ 3.6 Vp-p, 0.15 µsec IC017 ① – ⑧ REC	❿ 3.4 Vp-p, 13.5 MHz IC015 – IC017 ⑫ REC/PB

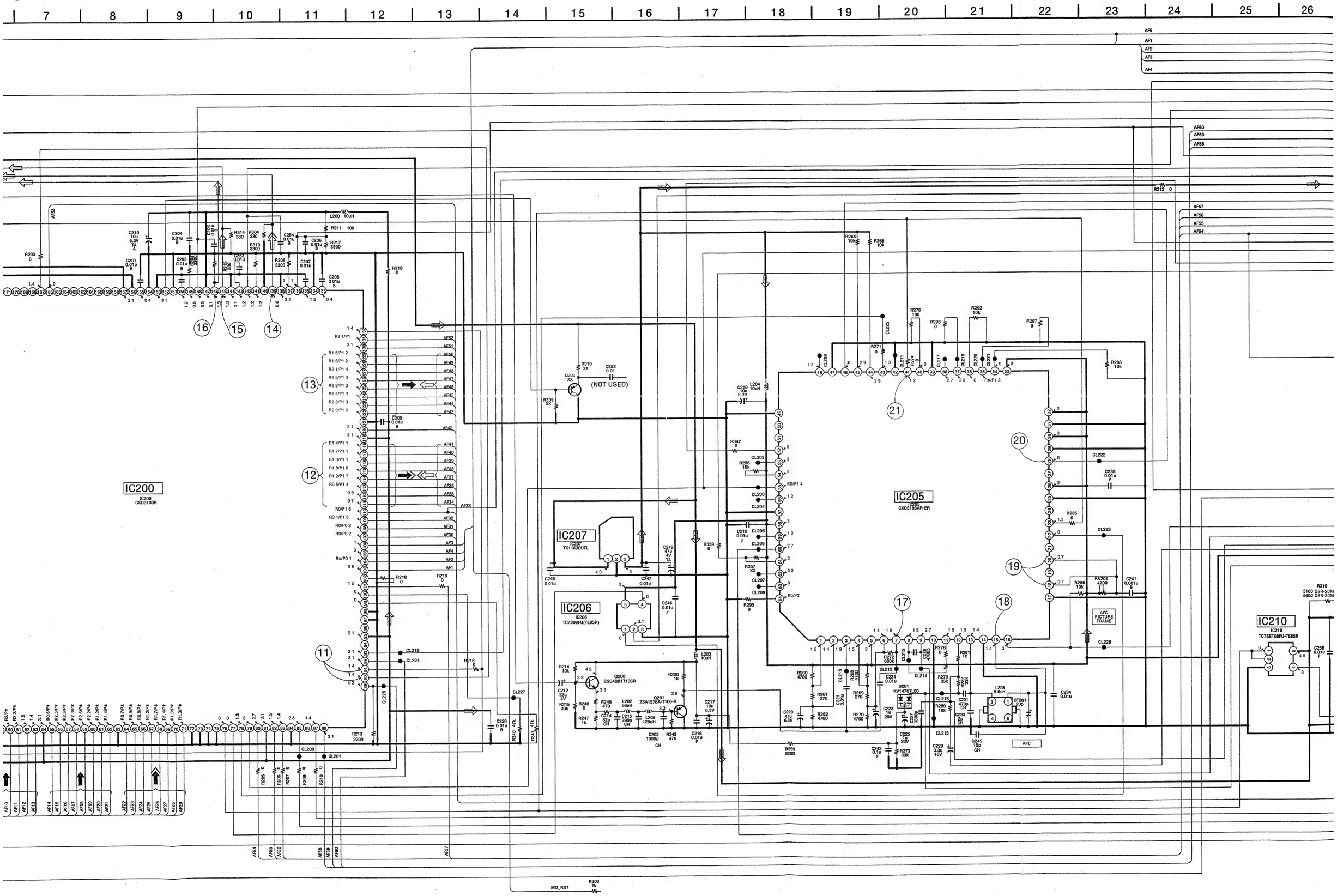
JC-19 BOARD (2/10)

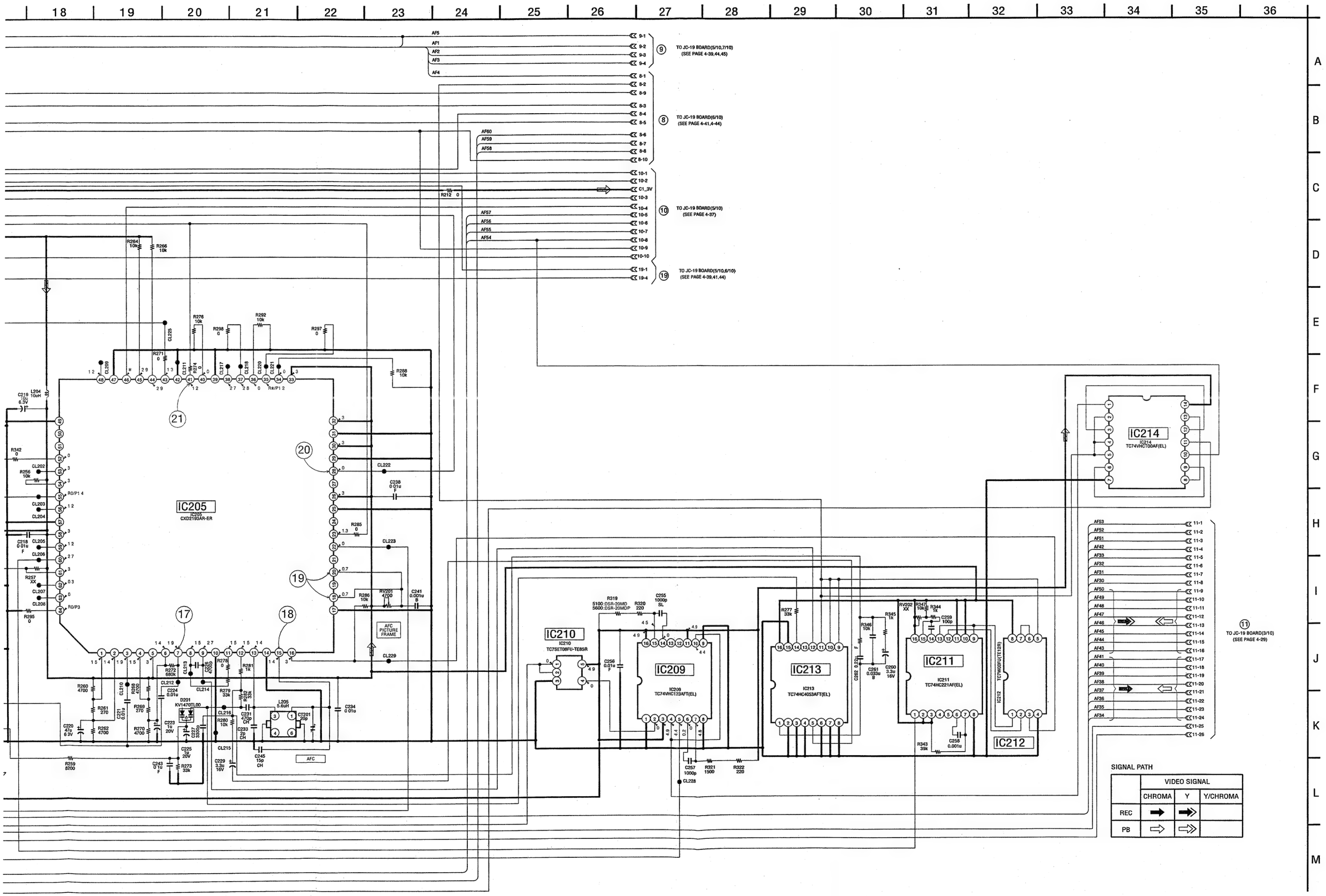
⑪ 3.8 Vp-p, 13.5 MHz IC200 ⑨⓪, ⑨① REC/PB	⑰ 0.8 Vp-p, H IC205 ⑦ REC
⑫ 3.4 Vp-p, 0.15 µsec IC200 ⑪1– ⑪6 REC/PB	⑱ 3.2 Vp-p, 13.5 MHz IC205 ⑮ REC/PB
⑬ 3.4 Vp-p, 0.15 µsec IC200 ⑫2– ⑫8 REC/PB	⑲ 3.0 Vp-p, H IC205 ⑱, ⑳ REC/PB
⑭ 1.2 Vp-p, H IC200 ⑬9 PB	⑳ 3.0 Vp-p, H IC205 ㉘ REC/PB
⑮ 0.39 Vp-p, H IC200 ⑭5 PB	㉑ 3.2 Vp-p, 13.5 MHz IC205 ㊶ REC/PB
⑯ 0.54 Vp-p, H IC200 ⑯ PB	

JC-19 (S1 AFC) SCHEMATIC DIAGRAM • See page 4-14 for JC-19 printed wiring board.



ing board.


IC200
IC200
CXD3100R
IC205
IC205
CXD2193AR-ER
IC207
IC207
TK11630UTL
IC206
IC206
TC7S08FU(TE85R)
IC210
IC210
TC7SET08FU-TE85R
(NOT USED)
(NOT USED)
AFC
PICTURE
FRAME
AFC


IC205
CXD2193AR-ER
IC210
TC7SET08FU-TE85R
IC209
TC74VHC123AFT(EL)
IC213
TC74HC4053AFT(EL)
IC211
TC74HC221AF(EL)
IC212
TC7W08FU(TE12R)
IC214
TC74VHC100AF(EL)
TO JC-19 BOARD(5/10,7/10)
(SEE PAGE 4-39,44,45)
TO JC-19 BOARD(6/10)
(SEE PAGE 4-41,4-44)
TO JC-19 BOARD(5/10)
(SEE PAGE 4-37)
TO JC-19 BOARD(5/10,6/10)
(SEE PAGE 4-39,41,44)
TO JC-19 BOARD(3/10)
(SEE PAGE 4-29)
AFC PICTURE FRAME
AFC
SIGNAL PATH
VIDEO SIGNAL
CHROMA
Y
Y/CHROMA
REC
PB

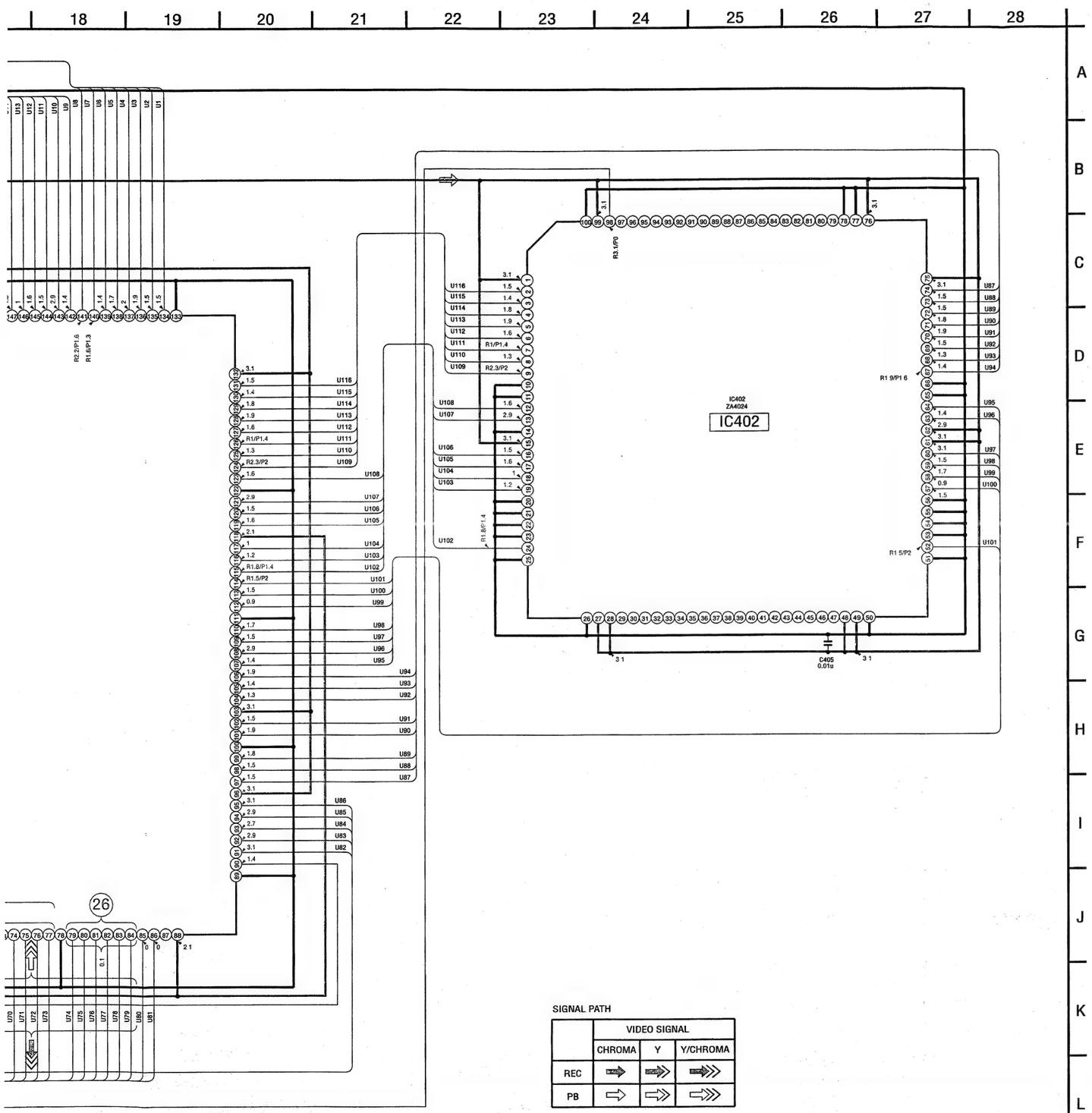
JC-19 BOARD(3/10)

U1
-REF.NO.:2,000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R:REC MODE
P:PB MODE

IC403
ZA4024
IC403

IC401
CXD3103R
IC401

TO JC-19 BOARD(1/10) (SEE PAGE 4-19) ⑦
TO JC-19 BOARD(4/10) (SEE PAGE 4-34) ⑫
⑪ TO JC-19 BOARD(2/10) (SEE PAGE 4-28)
⑬ TO JC-19 BOARD(4/10-6/10,8/10) (SEE PAGE 4/34,37,42,52)
⑭ TO JC-19 BOARD(4/10,5/10) (SEE PAGE 4/34,37)
㉝ TO JC-19 BOARD(5/10) (SEE PAGE 4/37)



SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	⇨	⇨	⇨
PB	⇨	⇨	⇨

JC-19 BOARD (3/10)

22
3.4 Vp-p
0.12 µsec
IC401 ⑤ – ⑪, ⑬ REC/PB

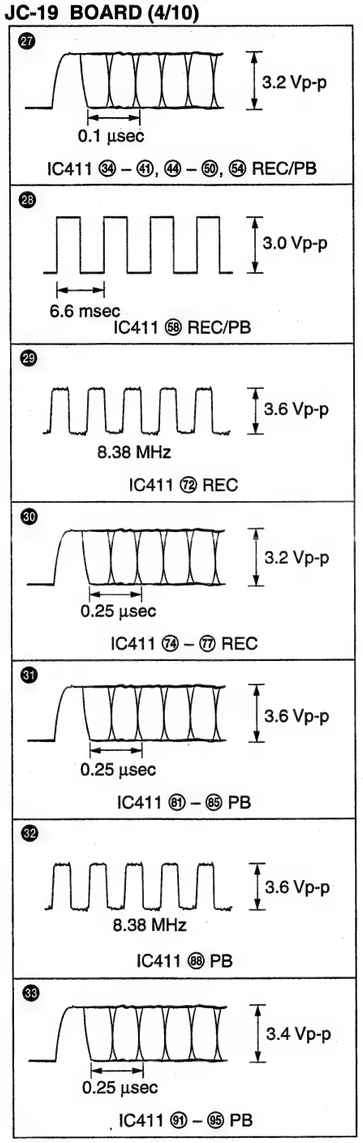
23
3.6 Vp-p
13.5 MHz
IC401 ⑭ REC/PB

24
3.4 Vp-p
0.12 µsec
IC401 ⑰ – ㉒, ㉔, ㉕ REC/PB

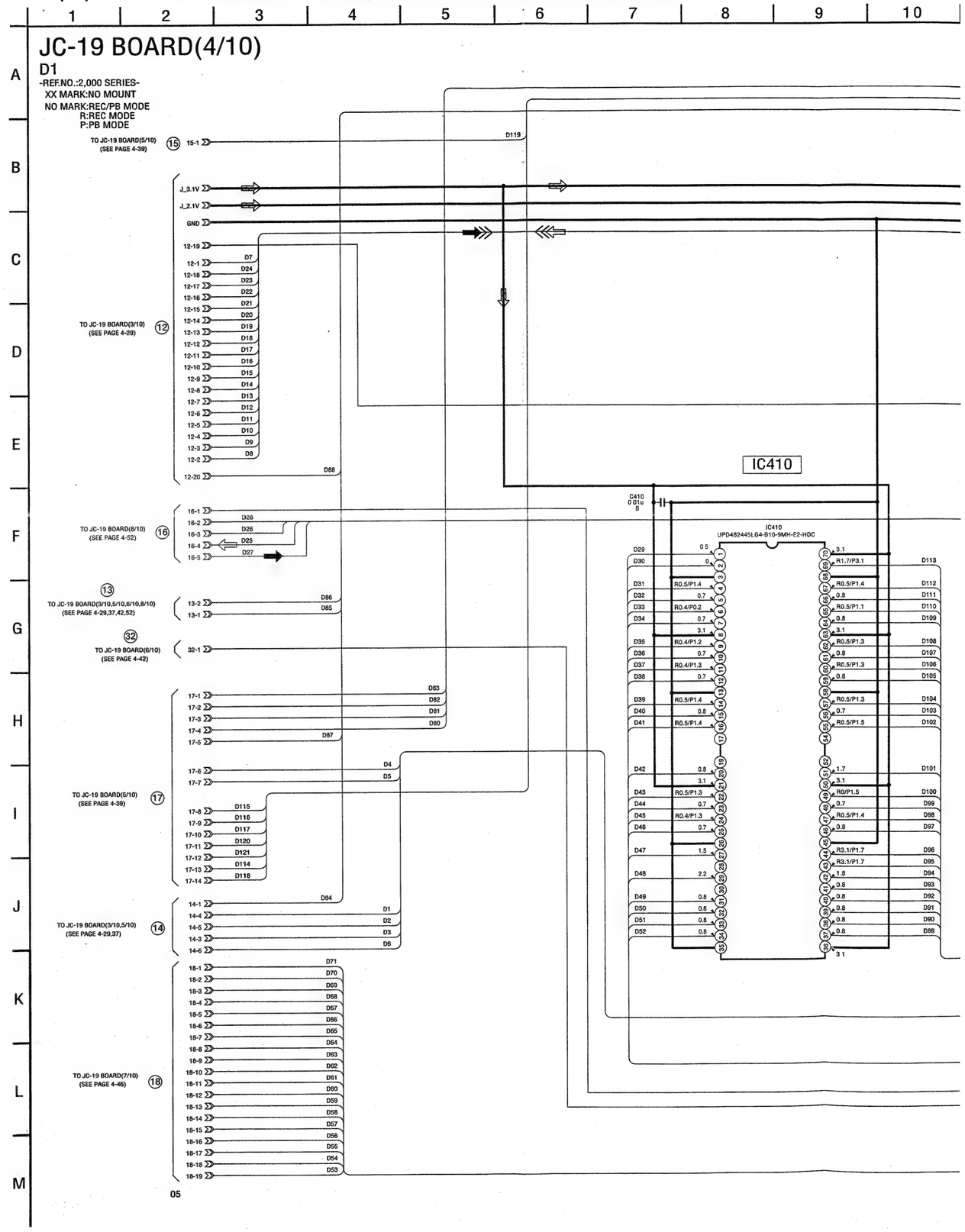
25
3.2 Vp-p
18.16 MHz
IC401 ㉝ REC/PB

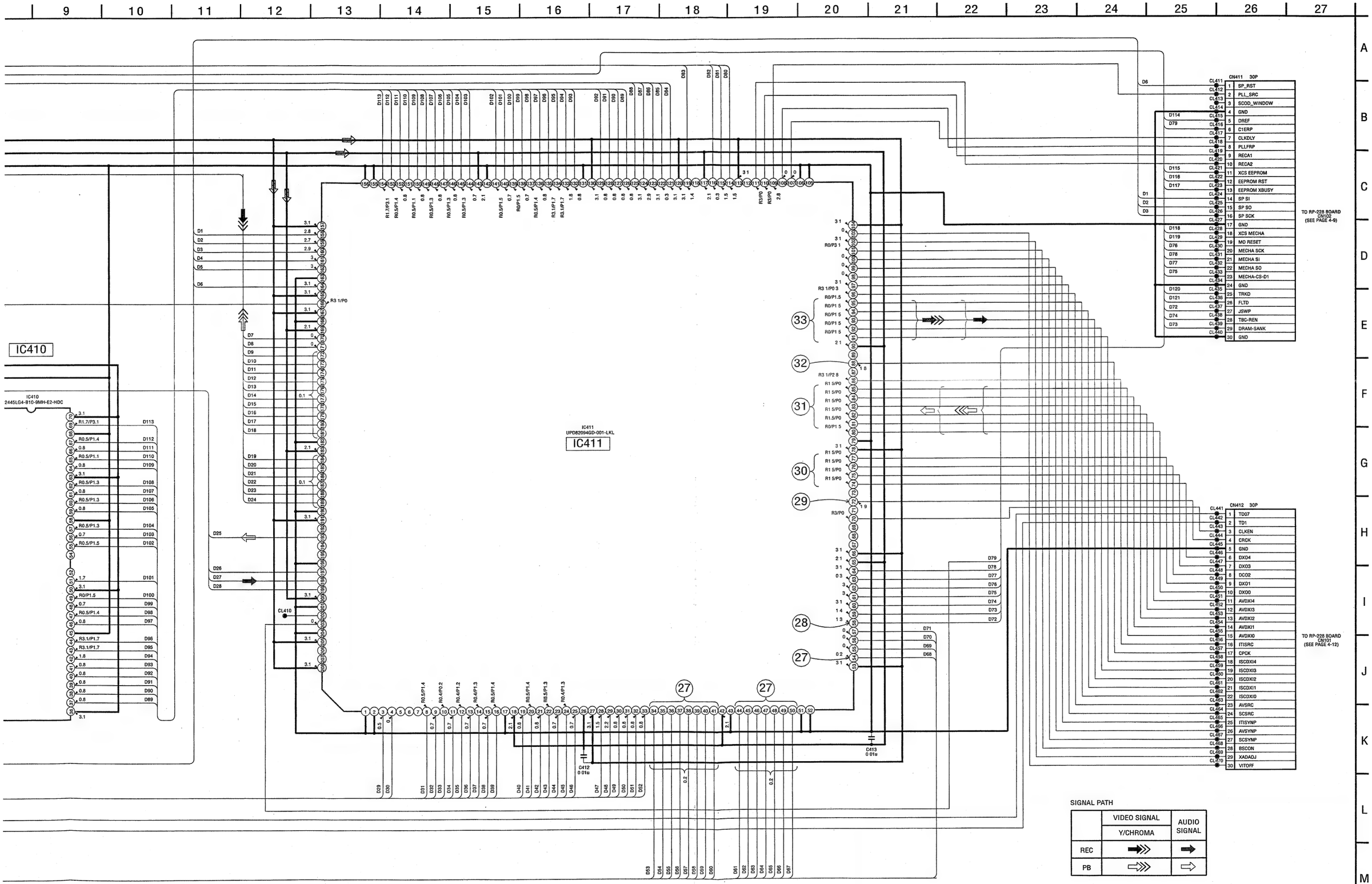
26
2.4 Vp-p
0.12 µsec
IC401 ㊽ – ㊼, ㊾ – ㊹ REC/PB

JC-19 BOARD (4/10)



JC-19 (D1) SCHEMATIC DIAGRAM • See page 4-14 for JC-19 printed wiring board.

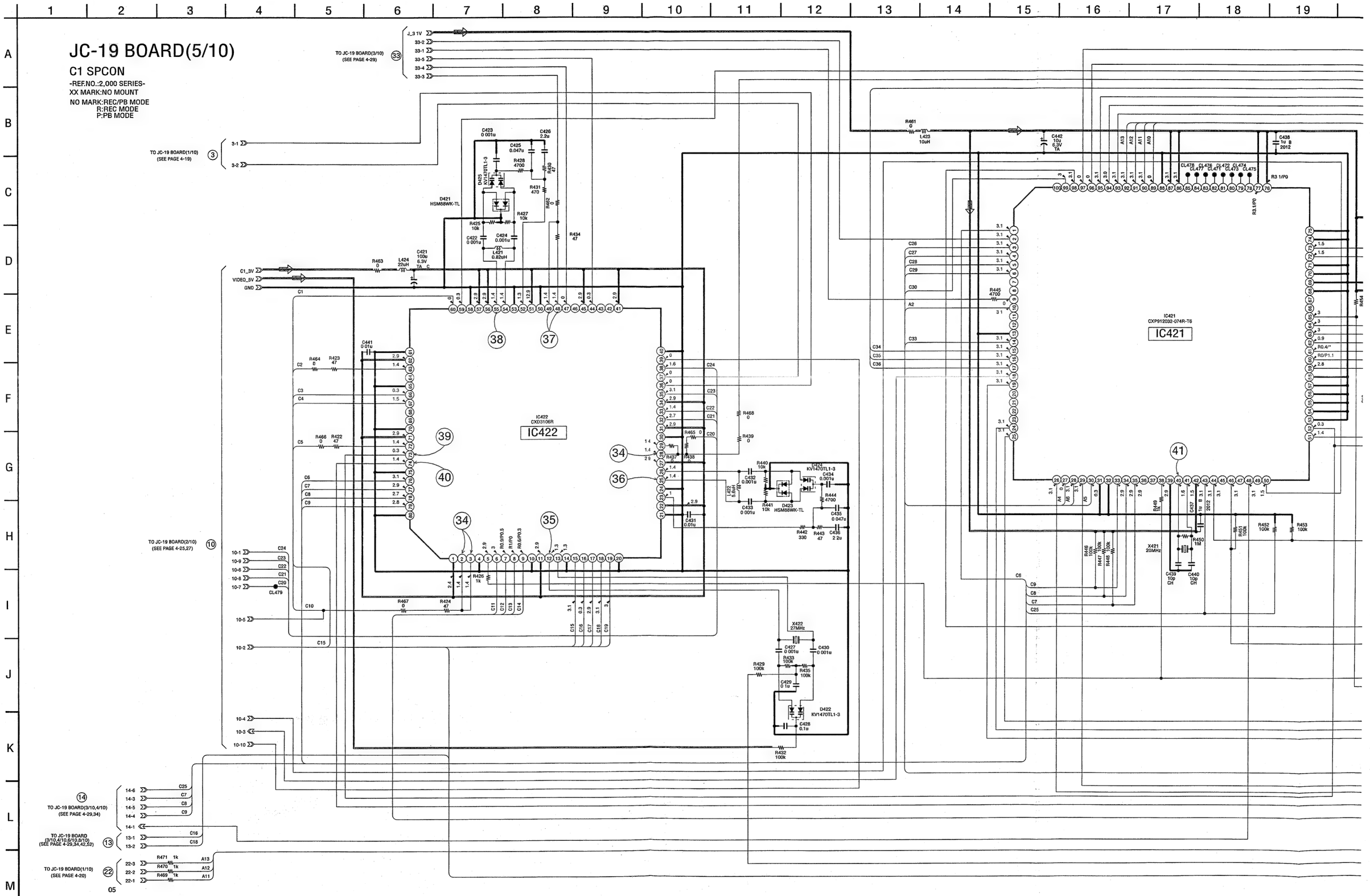


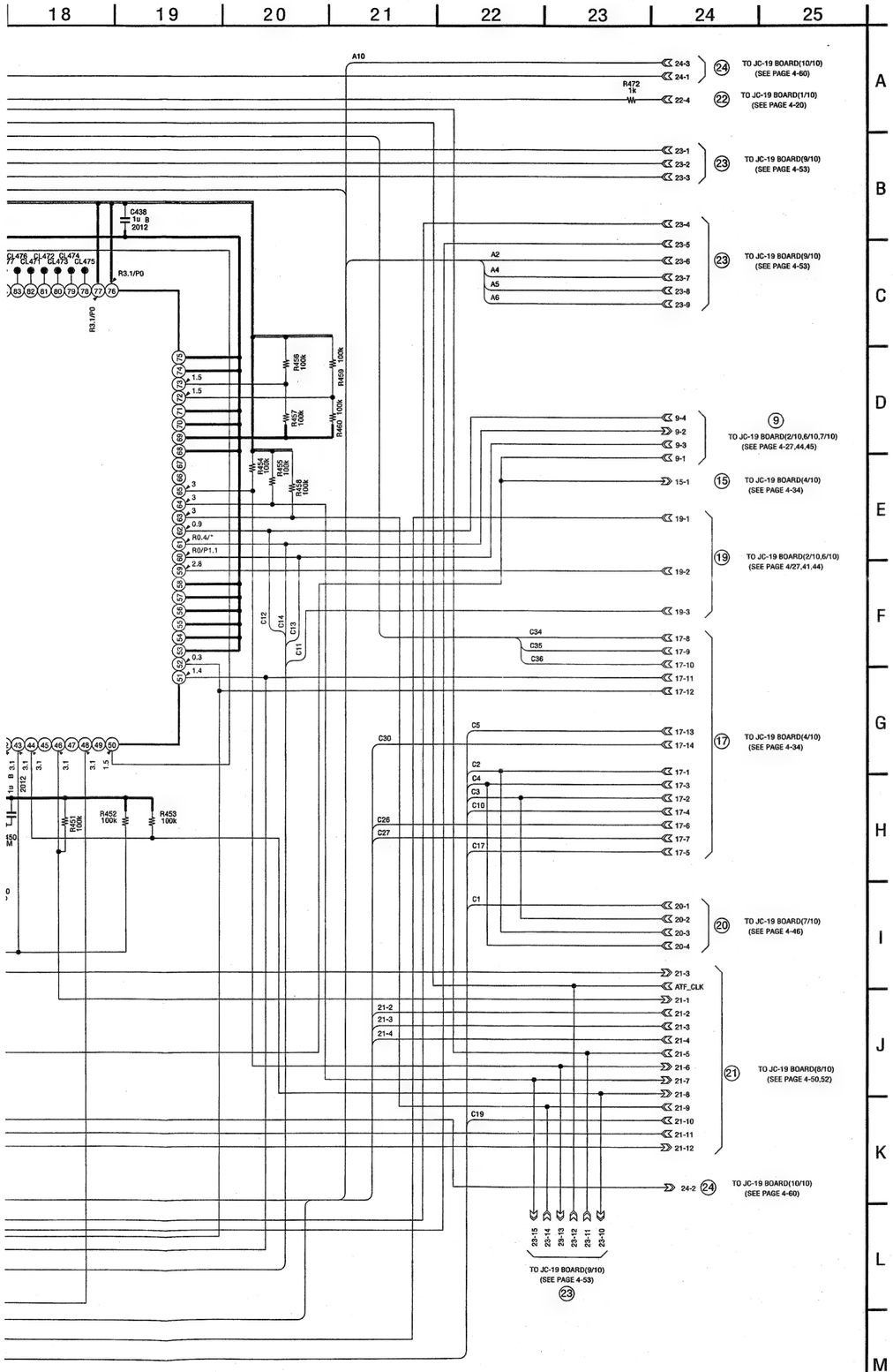

IC410
IC410
2445LG4-B10-9MH-E2-HDC
IC411
UPD82094GD-001-LKL
IC411
CL410
C412
0.01u
C413
0.01u
CN411 30P
1 SP_RST
2 PLL_SRC
3 SCOD_WINDOW
4 GND
5 DREF
6 C1ERP
7 CLKDLV
8 PLLFRP
9 RECA1
10 RECA2
11 XCS EEPROM
12 EEPROM RST
13 EEPROM XBUSY
14 SP SI
15 SP SO
16 SP SCK
17 GND
18 XCS MECHA
19 MO RESET
20 MECHA SCK
21 MECHA SI
22 MECHA SO
23 MECHA-CS-D1
24 GND
25 TRKD
26 FLTD
27 JSWP
28 TBC-REN
29 DRAM-SANK
30 GND
TO RP-228 BOARD
CN102
(SEE PAGE 4-9)
CN412 30P
1 TD07
2 TD1
3 CLKEN
4 CRCK
5 GND
6 DXO4
7 DXO3
8 DCO2
9 DXO1
10 DXO0
11 AVDXI4
12 AVDXI3
13 AVDXI2
14 AVDXI1
15 AVDXI0
16 ITISRC
17 CPCK
18 ISCDXI4
19 ISCDXI3
20 ISCDXI2
21 ISCDXI1
22 ISCDXI0
23 AVSRC
24 SCSRC
25 ITISYNP
26 AVSYNP
27 SCSYNP
28 BSCON
29 XADADJ
30 VITOFF
TO RP-228 BOARD
CN101
(SEE PAGE 4-12)
SIGNAL PATH
VIDEO SIGNAL
Y/CHROMA
AUDIO SIGNAL
REC
PB

JC-19 BOARD(5/10)

C1 SPCON

-REF.NO.:2,000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R:REC MODE
P:PB MODE





JC-19 BOARD (5/10)

34
3.4 Vp-p
13.5 MHz
IC422 ②, ③, ㉘ REC/PB

35
3.4 Vp-p
27 MHz
IC422 ⑫ REC/PB

36
3.2 Vp-p
13.5 MHz
IC422 ㉕ REC/PB

37
3.2 Vp-p
18.1 MHz
IC422 ㊽, ㊾ REC/PB

38
2.5 Vp-p
36.3 MHz
IC422 ㊺ REC/PB

39
2.9 Vp-p
33 msec
IC422 ㉝ REC/PB

40
2.8 Vp-p
6.6 msec
IC422 ㉞ REC/PB

41
2.8 Vp-p
20 MHz
IC421 ㊵ REC/PB

JC-19 (MODE) SCHEMATIC DIAGRAM • See page 4-14 for JC-19 printed wiring board.

JC-19 BOARD (6/10)

42
2.8 Vp-p
20 MHz
IC501 ㊵ REC/PB

43
2.5 Vp-p
32.768 KHz
IC501 ㊷ REC/PB

JC-19 BOARD(6/10)

MODE

-REF.NO.:2,000 SERIES-
XX MARK:NO MOUNT

NO MARK:REC/PB MODE
R:REC MODE
P:PB MODE
∗:IMPOSSIBLE TO MERSURE THE VOLTAGE AT THE MARKED POINTS.

TO CM-56 BOARD CN002 (SEE PAGE 4-107)
CN501 8P: CHIME_VDD 1, CHIME_SDA 2, CHIME_SCK 3, CHIME_GND 4, C_IN 5, N.C. 6, UNSW_3.1V 7, GND 8 → CL501–CL508

TO JC-19 BOARD(3/10,4/10,5/10,8/10) (SEE PAGE 4-29,34,37,52) ⑬ 13-1, 13-2
TO JC-19 BOARD(2/10) (SEE PAGE 4-27) ⑧ 8-6, 8-7, 8-8
TO JC-19 BOARD(4/10) (SEE PAGE 4-34) ㉜ 32-1

TO JC-19 BOARD(1/10) (SEE PAGE 4-19) ④
TO JC-19 BOARD(2/10,5/10) (SEE PAGE 4-27,39) ⑲ 19-1
TO JC-19 BOARD(2/10) (SEE PAGE 4-27) ⑧ 8-3, 8-4, 8-5
TO JC-19 BOARD(1/10) (SEE PAGE 4-19) ④ 4-1, 4-2, 4-3
TO JC-19 BOARD(1 (SEE PAGE 4-20) ⑥

UNSW_6V, B.UP_5V, GND, UNSW_3.1V
IC504 MB88146APFV-G-BND-ER IC504
C524 0.01u B; C505 0.01u B; C504 0.01u B
R587 22k, R586 22k
CL597 R502 100; CL598 R503 100, R505 100, R507 100, R509 10k; CL520 R511 10k, R512 100; CL522 R513 100; CL524 R514 100, R515 100, R517 100, R518 100
R504 MO_17; R506 MO_48; R508 MO_49; R510 MO_50
CL519, CL521, CL523, CL525

Q501 2SC4081T106R, R524 47k → MO_38
Q502 2SC4081T106R, R526 47k → MO_61
MO_45, MO_46, MO_80, MO_81, MO_55, MO_67, MO_29, MO_16, MO_48, MO_49, MO_50, MO_22, MO_32, MO_33, MO_34, MO_35

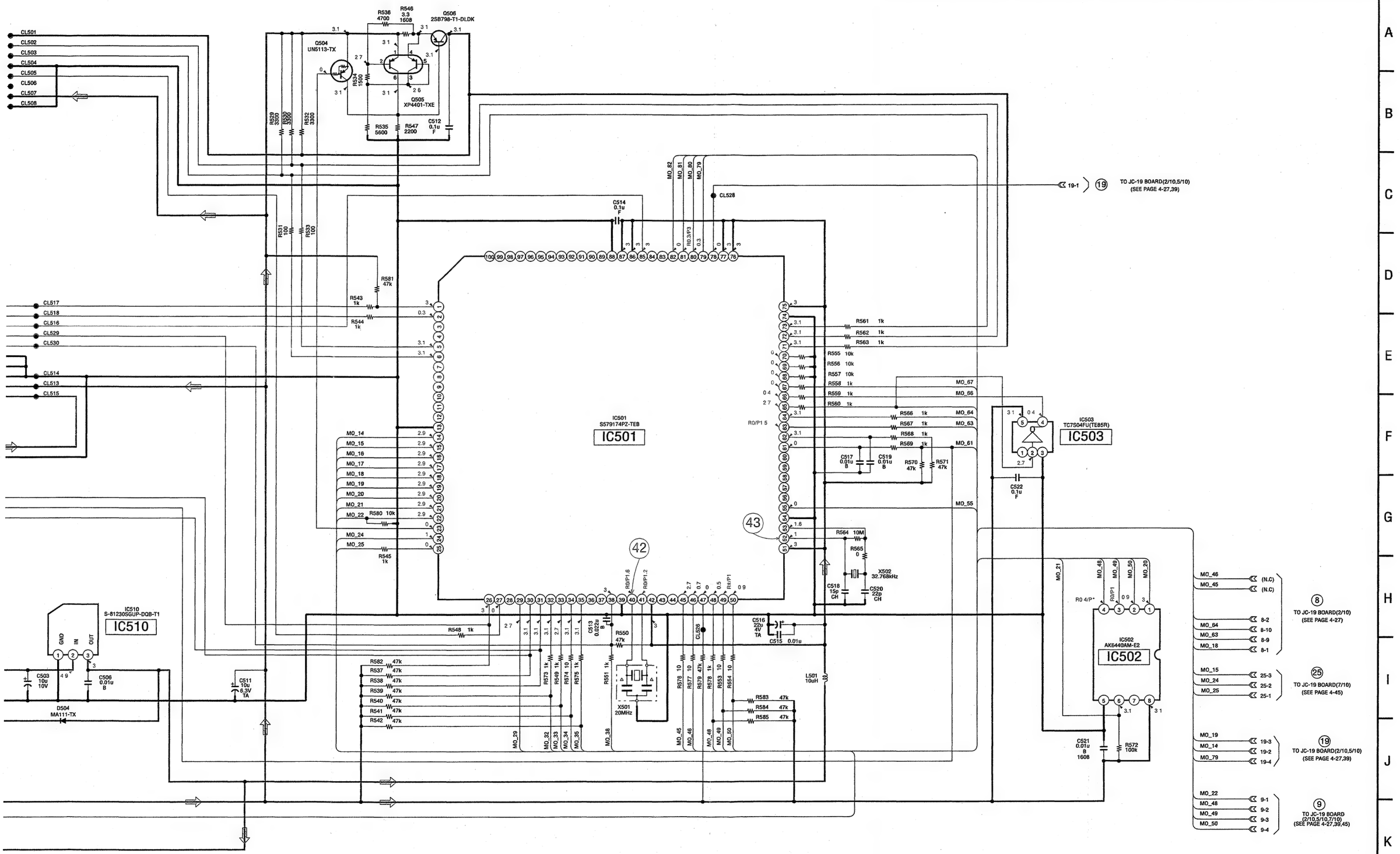
CN503 20P: TMS 20, TCK 18, TDI 16, TDOB 14, P_FAIL 12, xPARSLEY_MODE 10, GND 8, GND 6, UNSW_5V_RTN 4, UNSW_5V 2; LANC_IN 19, LANC_OUT 17, LANC_P_CONT 15, XLANC_PWR_ON 13, XRESET 11, GND 9, GND 7, GND 5, UNSW_3.1 3, UNSW_6V 1
CL509, CL510, CL511, CL512, CL531, CL596, CL532
CL517, CL518, CL516, CL529, CL530, CL514, CL513, CL515
D503 MA728-TX

IC510 S-81230SGUP-DQB-T1 IC510 (GND, IN, OUT)
C503 10u 10V; C506 0.01u B
D504 MA111-TX

IC511 S-81350HG-KD-T1 IC511 (OUT, GND, IN)
D501 MA111-TX
C501 0.01u B; C523 10u 10V; C502 0.01u B

05

MODE
SP1268 / Druck 2910)


12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
A
B
C
D
E
F
G
H
I
J
K
CL501
CL502
CL503
CL504
CL505
CL506
CL507
CL508
Q504
UN5113-TX
R536
4700
R546
3.3
1608
Q506
2SB798-T1-DLDK
R534
1500
Q505
XP4401-TXE
R529
3300
R530
3300
R531
3300
R532
3300
R535
5600
R547
2200
C512
0.1u
F
MO_82
MO_81
MO_80
MO_79
CL528
C514
0.1u
F
19-1
19
TO JC-19 BOARD(2/10,5/10)
(SEE PAGE 4-27,39)
R531
100
R533
100
R581
47k
CL517
CL518
CL516
CL529
CL530
R543
1k
R544
1k
CL514
CL513
CL515
IC501
S579174PZ-TEB
IC501
R561 1k
R562 1k
R563 1k
R555 10k
R556 10k
R557 10k
R558 1k
R559 1k
R560 1k
MO_67
MO_66
MO_64
MO_63
MO_61
MO_55
R566 1k
R567 1k
R568 1k
R569 1k
C517
0.01u
B
C519
0.01u
B
R570
47k
R571
47k
IC503
TC7S04FU(TE85R)
IC503
C522
0.1u
F
MO_14
MO_15
MO_16
MO_17
MO_18
MO_19
MO_20
MO_21
MO_22
R580 10k
MO_24
MO_25
R545
1k
43
42
R564 10M
R565
0
X502
32.768kHz
C518
15p
CH
C520
22p
CH
MO_21
MO_48
MO_49
MO_50
MO_20
IC502
AK6440AM-E2
IC502
MO_46
MO_45
(N.C)
(N.C)
8
TO JC-19 BOARD(2/10)
(SEE PAGE 4-27)
MO_64
MO_63
MO_18
8-2
8-10
8-9
8-1
MO_15
MO_24
MO_25
25-3
25-2
25-1
25
TO JC-19 BOARD(7/10)
(SEE PAGE 4-45)
MO_19
MO_14
MO_79
19-3
19-2
19-4
19
TO JC-19 BOARD(2/10,5/10)
(SEE PAGE 4-27,39)
MO_22
MO_48
MO_49
MO_50
9-1
9-2
9-3
9-4
9
TO JC-19 BOARD
(2/10,5/10,7/10)
(SEE PAGE 4-27,39,45)
IC510
S-81230SGUP-DOB-T1
IC510
GND
IN
OUT
C503
10u
10V
C506
0.01u
B
D504
MA111-TX
C511
10u
6.3V
TA
R548 1k
R582 47k
R537 47k
R538 47k
R539 47k
R540 47k
R541 47k
R542 47k
R573 1k
R549 1k
R574 10
R575 1k
C513
0.022u
B
R550
47k
R551 1k
X501
20MHz
R576 10
R577 10
R579 47k
R578 1k
R553 10
R554 10
CL526
C516
22p
4V
TA
C515 0.01u
L501
10uH
R583 47k
R584 47k
R585 47k
MO_29
MO_32
MO_33
MO_34
MO_35
MO_38
MO_45
MO_46
MO_48
MO_49
MO_50
C521
0.01u
B
1608
R572
100k

JC-19 BOARD(7/10)

DV IN/OUT

-REF.NO.:2,000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R:REC MODE
P:PB MODE
*:IMPOSSIBLE TO MEASURE THE VOLTAGE AT THE MARKED POINTS.

FOR CHECK

CN702 XX: 1 GND, 2 J_3.1V, 3 XCS_INDI, 4 MO_SI, 5 MO_SO, 6 MO_SCK, 7 INDI_CNCT, 8 INDI_WKUP, 9 MO_RST, 10 N.C, 11 N.C, 12 N.C, 13 N.C, 14 N.C, 15 N.C, 16 N.C, 17 N.C, 18 TRGK2, 19 FLTT, 20 TRKT, 21 FLTE, 22 INEPA, 23 IOEC, 24 INEPV, 25 INDT15, 26 INDT14, 27 INDT13, 28 INDT12, 29 INDT11, 30 INDT10, 31 INDT9, 32 INDT8, 33 INDT7, 34 INDT6, 35 INDT5, 36 INDT4, 37 INDT3, 38 INDT2, 39 INDT1, 40 INDT0

(SEE PAGE 4-19) TO JC-19 BOARD (1/10) (26)
(SEE PAGE 4-44) TO JC-19 BOARD (6/10) (25)
(SEE PAGE 4-27,39,44) TO JC-19 BOARD (2/10,5/10,6/10) (9)
(SEE PAGE 4-34) TO JC-19 BOARD (4/10) (18)
(SEE PAGE 4-39) TO JC-19 BOARD (5/10) (20)
(SEE PAGE 4-52) TO JC-19 BOARD (8/10) (31)

GND, J_3.1V, 25-3, 25-1, 25-2, 9-1, 9-4, 9-3, 9-2

CL708, CL712, CL713, CL723, CL724, CL725, CL726, CL727, CL728, CL729, CL730, CL731, CL732, CL733, CL734, CL735, CL736, CL737, CL738, CL739, CL740, CL741, CL742, CL743, CL744, CL745

IN14, IN11, IN13, IN12

R701 10k
R727 0
R704 10k
R705 10k
C703 0.1u F
IN7, IN8, IN9, IN10, IN4, IN5, IN6

R3 1/P0, R3.1/P0, R3.0/P3

X702 6MHz
R703 1M
R726 100k
R702 1k
R#/P0
R0.4/P*

IC703
HD6433837T855X
IC703

IN1, IN2, IN4, IA4, IA3, IA2, IA1, IA0, IN3

ID0, ID1, ID2, ID3, ID4, ID5, ID6, ID7, ID8, ID9, ID10, ID11, ID12, ID13, ID14, ID15

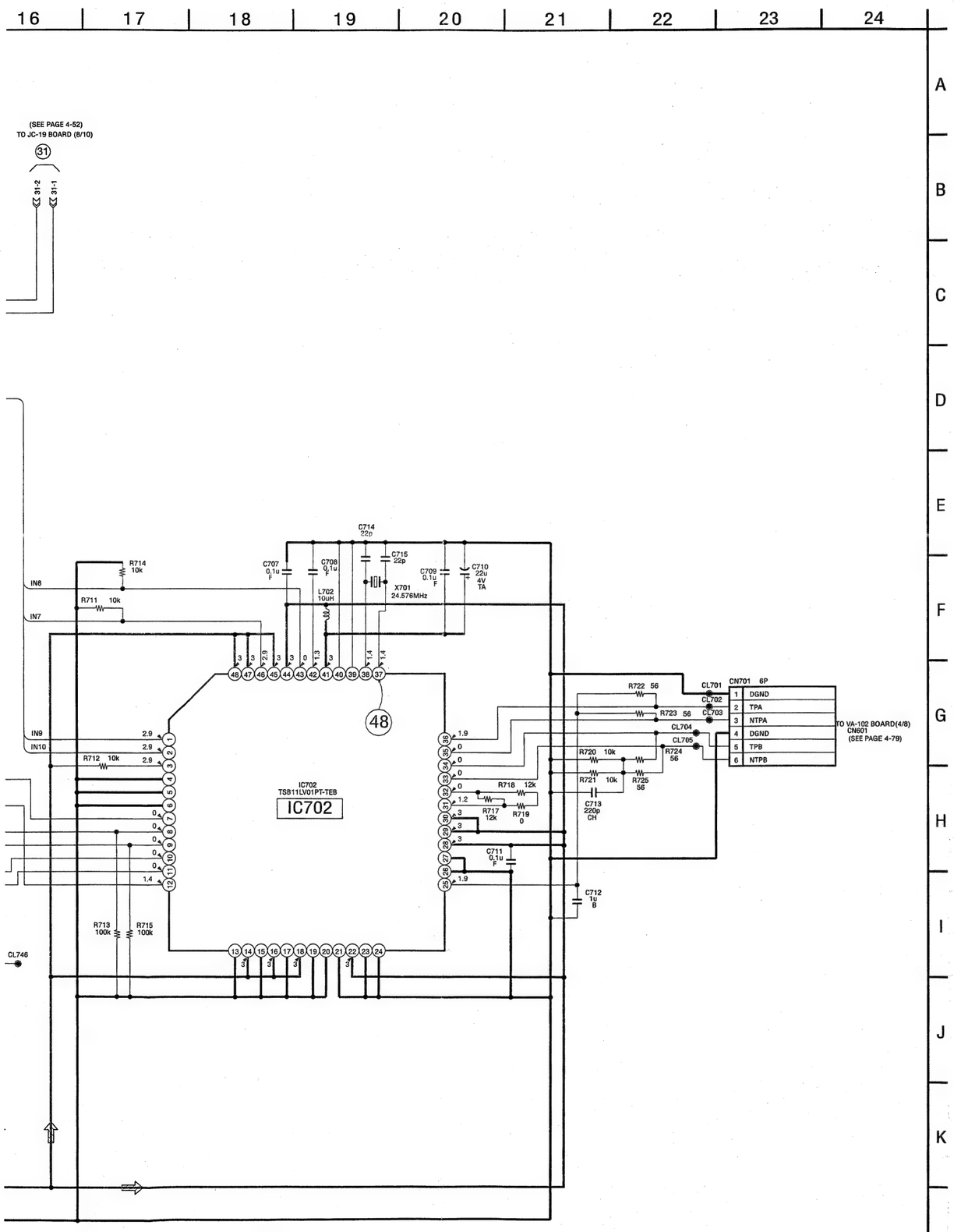
C702 0.1u F
L703 100uH
C701 10u TA
L701 4.7uH
C704 10u 6.3V TA

IC701
CXD2194AR
IC701

C705 0.1u F
C706 0.1u F
R706 1k
R707 100k
R708 0
R709 100k
R710 100k
R711 10k
R712 10k
R713 100k
R714 10k
R715 100k
CL746

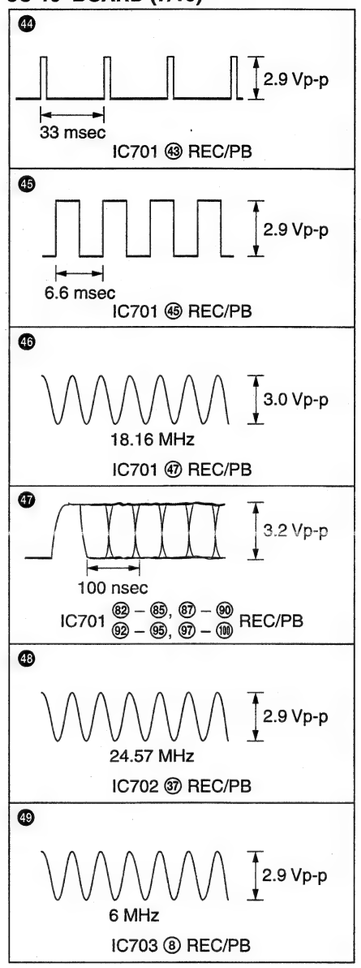
IN12, IN13, IN11, IN14, IN8, IN7, IN9, IN10, IA0, IN3, IN2, IN1, IN5, IN4, IN6

(47) (49) (44) (45) (46)



SP1268 / Druck 32

JC-19 BOARD (7/10)



DV IN/OUT
JC-19 (7/10)

JC-19 (AUDIO CORE) SCHEMATIC DIAGRAM • See page 4-14 for JC-19 printed wiring board.

JC-19 BOARD (8/10)

50
0.9 Vp-p
49.152 MHz
IC801 (29) REC/PB

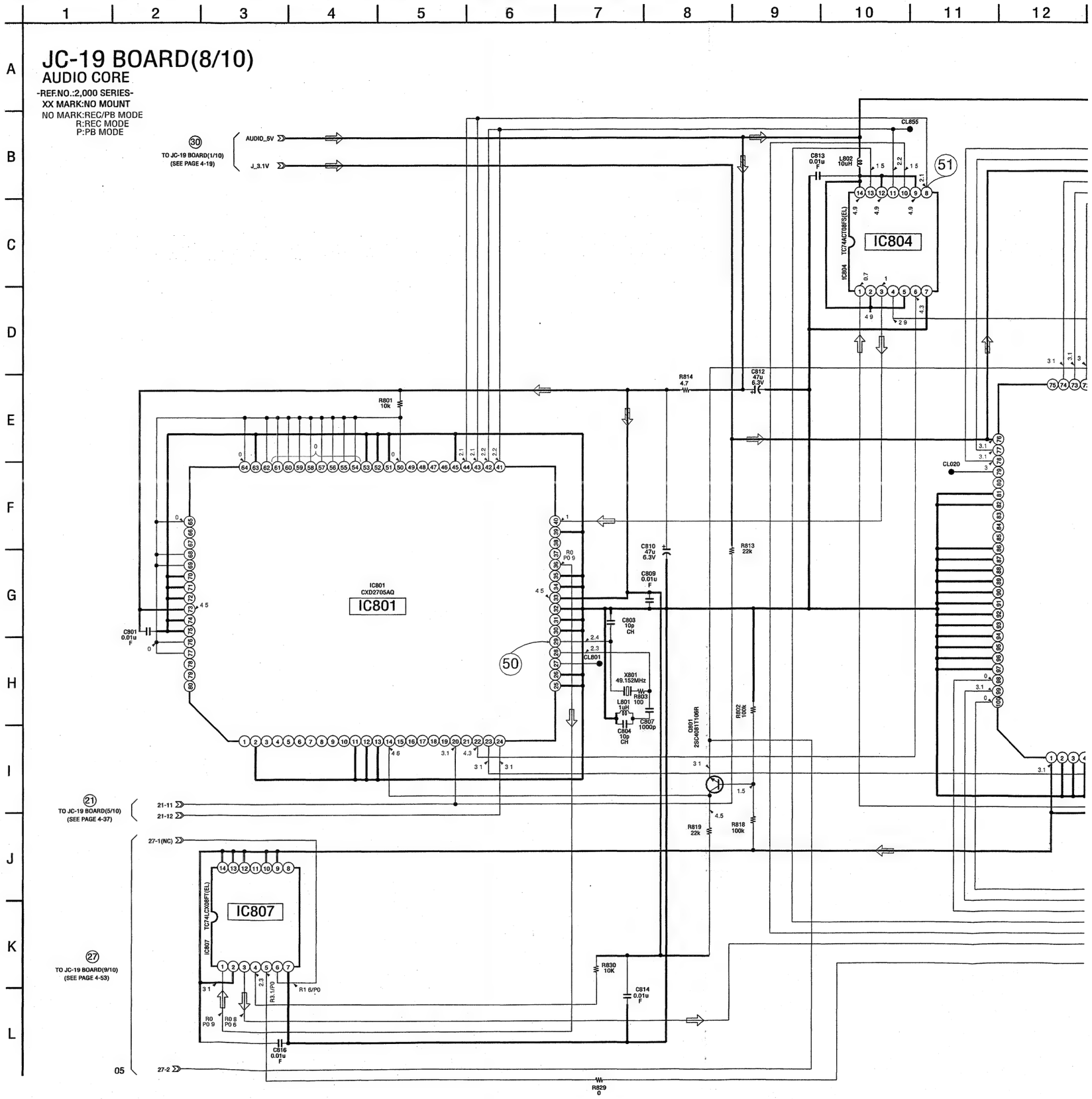
51
4.5 Vp-p
3 MHz
IC804 (8) REC/PB

52
3.6 Vp-p
12.3 MHz
IC805 (28) REC/PB

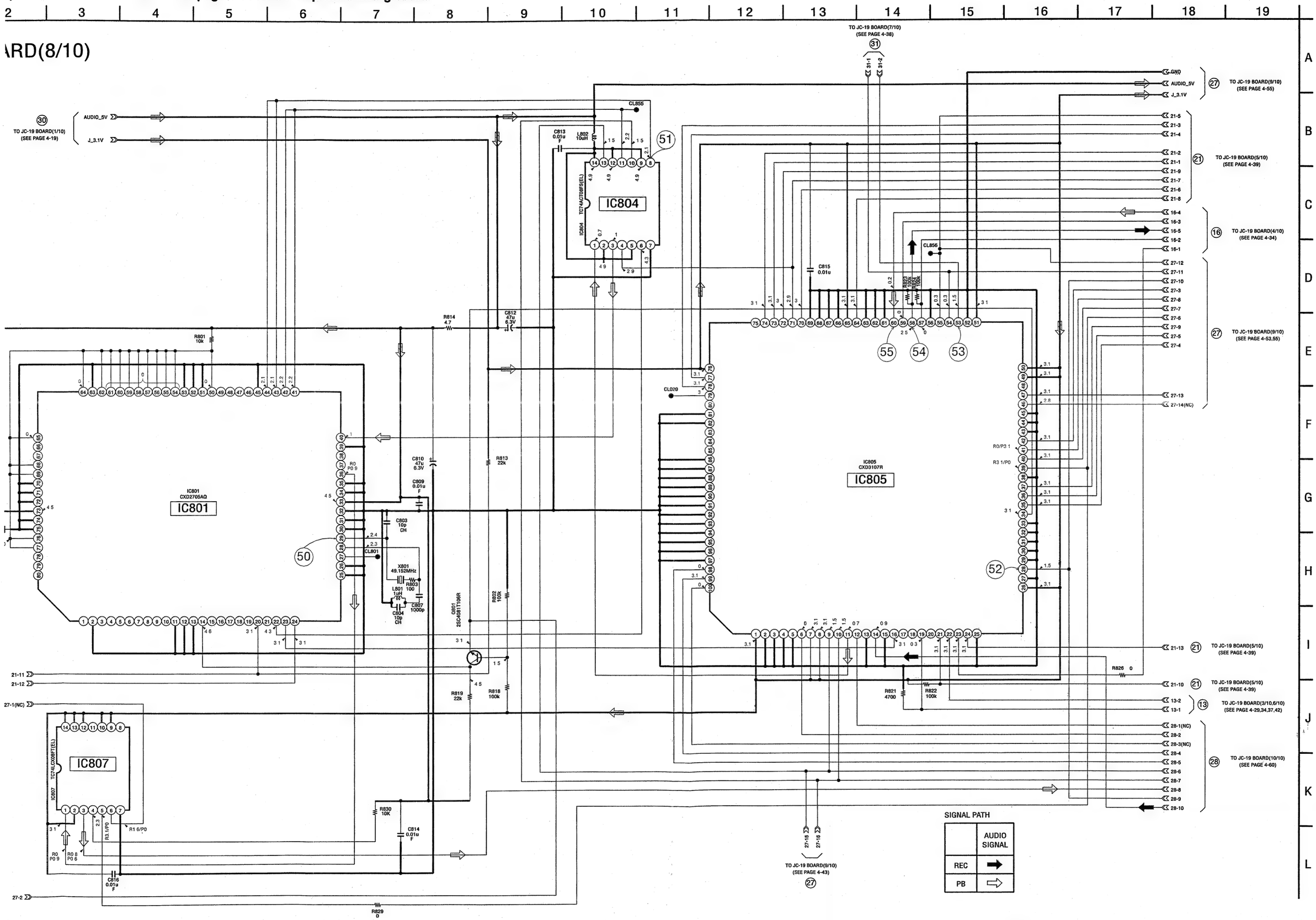
53
2.8 Vp-p
18.16 MHz
IC805 (53) REC/PB

54
3.1 Vp-p
1.1 msec
IC805 (58) REC

55
3.1 Vp-p
1.1 msec
IC805 (60) PB



ARD(8/10)


IC801
CXD2705AQ
IC801
IC804
TC74ACT08F(EL)
IC804
IC805
CXD3107R
IC805
IC807
TC74LCX08FT(EL)
IC807
CL855
CL856
CL020
CL801
C801
2SC4081T106R
X801
49.152MHz
C803 10p CH
C804 10p CH
C807 1000p
C809 0.01u F
C810 47u 6.3V
C812 47u 6.3V
C813 0.01u F
C814 0.01u F
C815 0.01u
C816 0.01u F
L802 10uH
L801 1uH
R801 10k
R813 22k
R814 4.7 W
R819 22k
R818 100k
R822 100k
R821 4700
R826 0
R829 0
R830 10K
R0/P0 9
R0/P3 1
R3 1/P0
R0 P0 9
R0 P0 8
R0 P0 6
R3 1/P0
R1 6/P0
AUDIO_5V
J_3.1V
GND
TO JC-19 BOARD(1/10) (SEE PAGE 4-19)
TO JC-19 BOARD(7/10) (SEE PAGE 4-38)
TO JC-19 BOARD(9/10) (SEE PAGE 4-55)
TO JC-19 BOARD(5/10) (SEE PAGE 4-39)
TO JC-19 BOARD(4/10) (SEE PAGE 4-34)
TO JC-19 BOARD(9/10) (SEE PAGE 4-53,55)
TO JC-19 BOARD(9/10) (SEE PAGE 4-43)
TO JC-19 BOARD(3/10,6/10) (SEE PAGE 4-29,34,37,42)
TO JC-19 BOARD(10/10) (SEE PAGE 4-60)
SIGNAL PATH
AUDIO SIGNAL
REC
PB

JC-19 BOARD(9/10)

DIGITAL AUDIO

-REF.NO.:2,000 SERIES-
XX MARK:NO MOUNT

NO MARK:REC/PB MODE
R:REC MODE
P:PB MODE

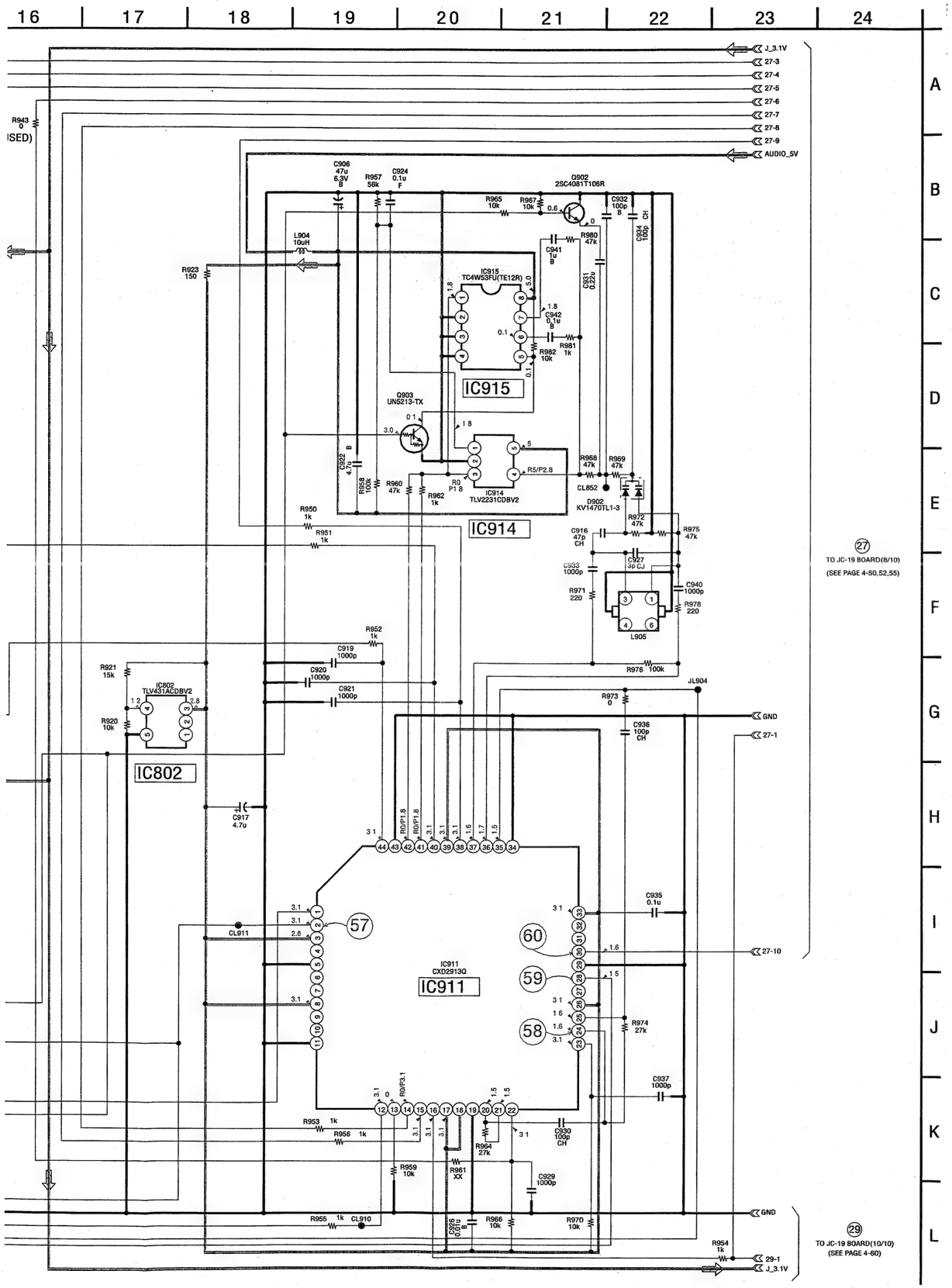
(27) TO JC-19 BOARD(8/10) (SEE PAGE 4-50)

(23) TO JC-19 BOARD(5/10) (SEE PAGE 4-39)

27-15 R909 0 CL003
27-16 R908 0 CL004
27-13 R905 1k CL912
27-12
27-11 R918 1k CL918
23-10
23-11 R919 0
23-7 R903 0
23-12 CL914
23-1 CL913
23-9
23-2 R913 1k CL916 CL915
23-3
23-13
23-14
23-15
23-6 R907 1k CL005
23-5
23-4
23-8 R924 6800

IC901 TC74VHC123AFT(EL)
IC902 TC74VHC74FT(EL)
IC904 CDX8630R
IC906 TC74VHC123AFT(EL)
IC907 TC7S86FU(TE85R)
IC908 TC7W08FU(TE12R)
IC909 TC74VHC74FT(EL)
IC916 TC7S08FU(TE85R)
IC903 TC7W74FU(TE12R)
IC802 TLV431ACDBV2

R906 33k
R904 27k
C901 0.01u B
C902 0.1u F
C903 0.1u F
C904 10u 6.3V
C905 0.1u F
C907 0.1u F
C908 0.1u F
C909 10u 6.3V
C910 0.22u
C911 0.1u F
C912 0.1u B
C914 2200p B
C915 0.01u
L901 10uH
L907 10uH
R926 1M
R936 100k
R937 100k
R938 150k
R939 10k
R941 0
D901 MA111-TX
R943 0 (NOT USED)
R944 10k
R923 150
R921 15k
R920 10k
CL854
CL853
R983 1k
CL001
CL002



JC-19 BOARD (9/10)

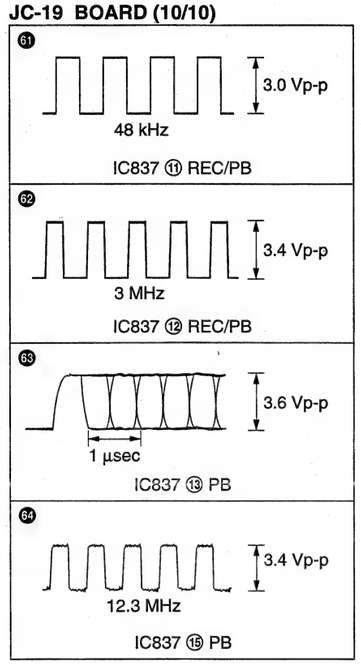
57
3.1 Vp-p
33 msec
IC911 ② PB

58
2.3 Vp-p
24.57 MHz
IC911 ㉔ REC/PB

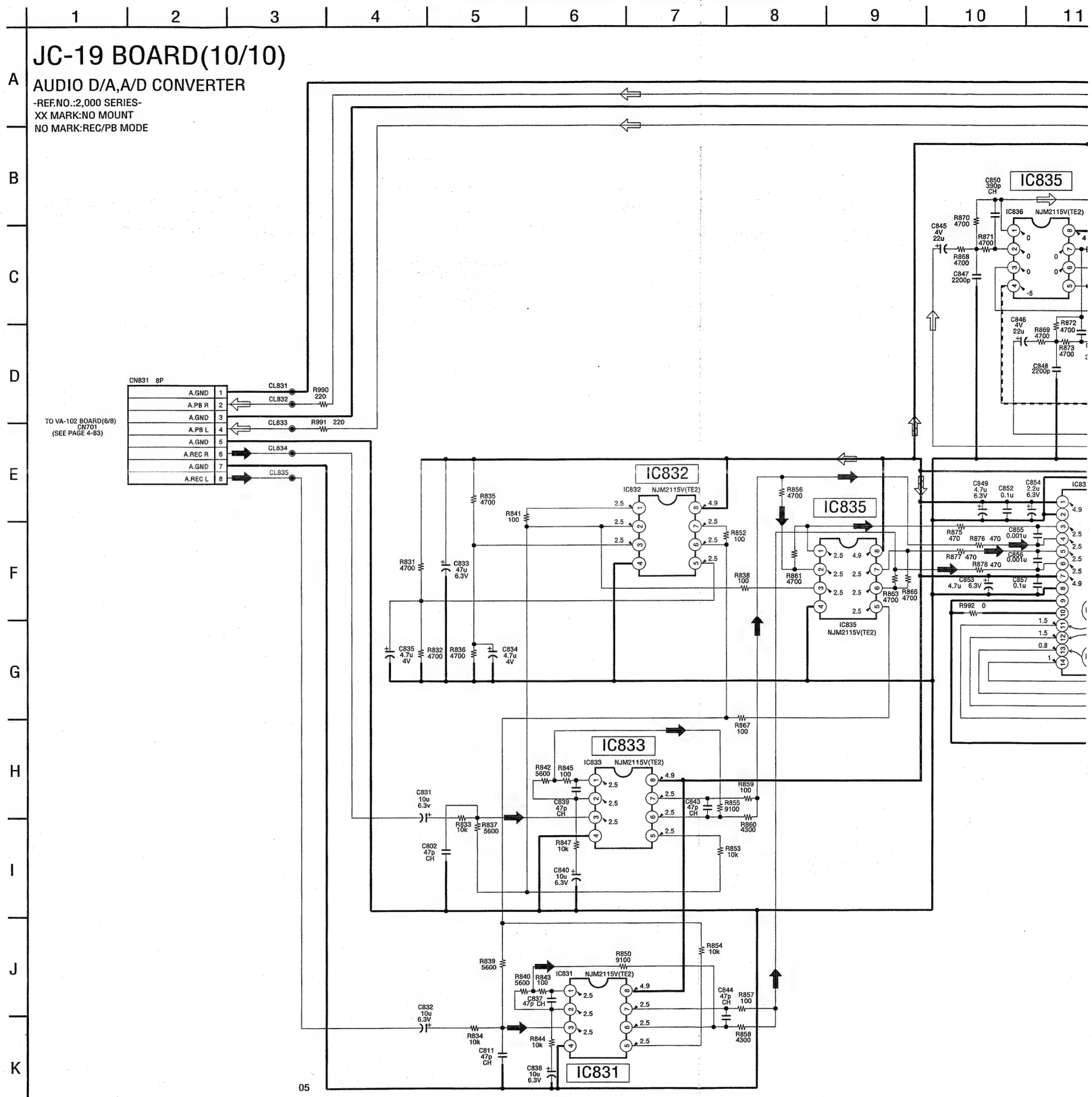
59
3.4 Vp-p
6.1 MHz
IC911 ㉘ REC/PB

60
3.4 Vp-p
12.3 MHz
IC911 ㉚ REC/PB

JC-19 BOARD (10/10)



JC-19 (AUDIO D/A, A/D CONVERTER) SCHEMATIC DIAGRAM • See page 4-14 for JC-19 printed wiring board.



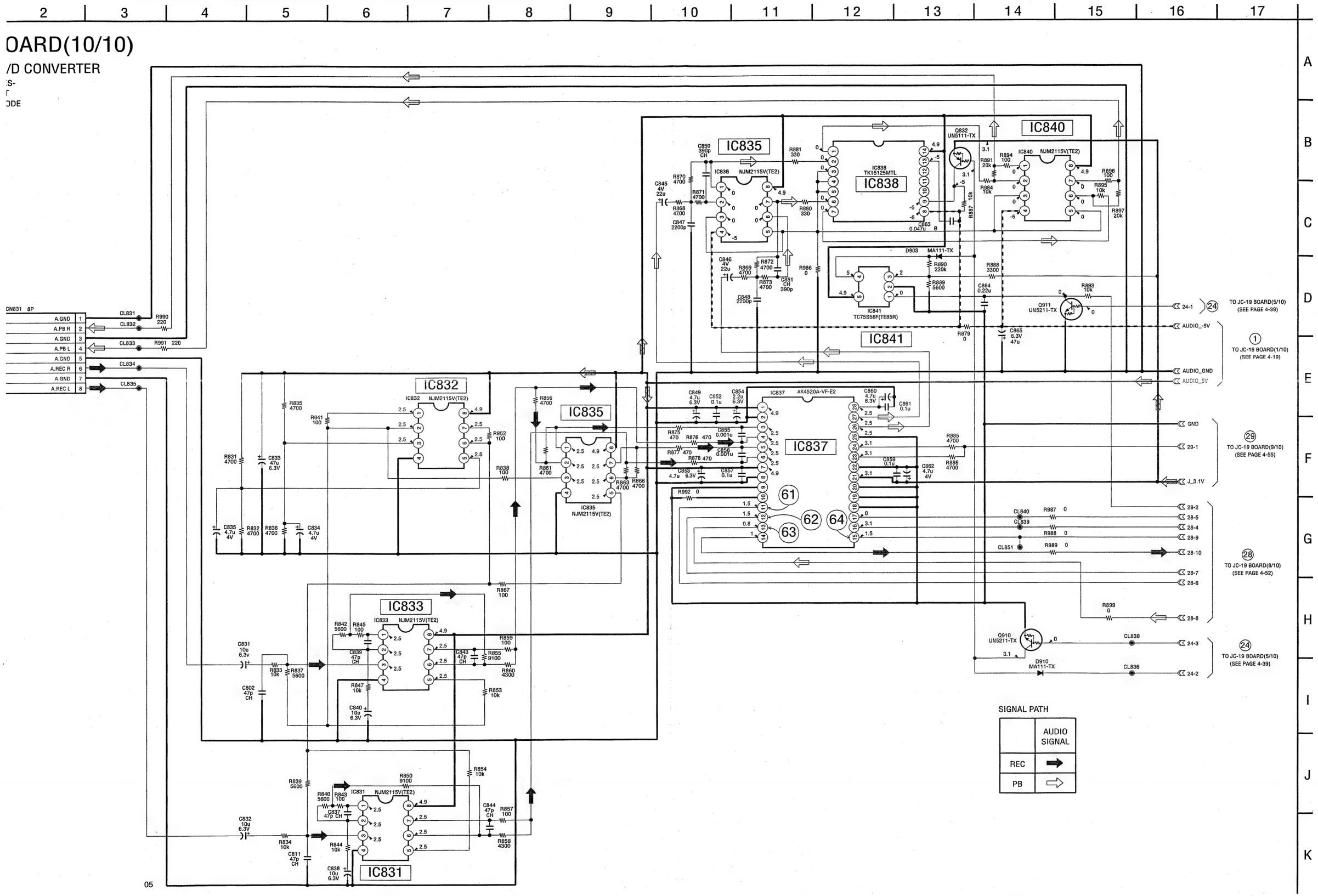
OARD(10/10)

/D CONVERTER

:S-

ｰ

ODE



SIGNAL PATH

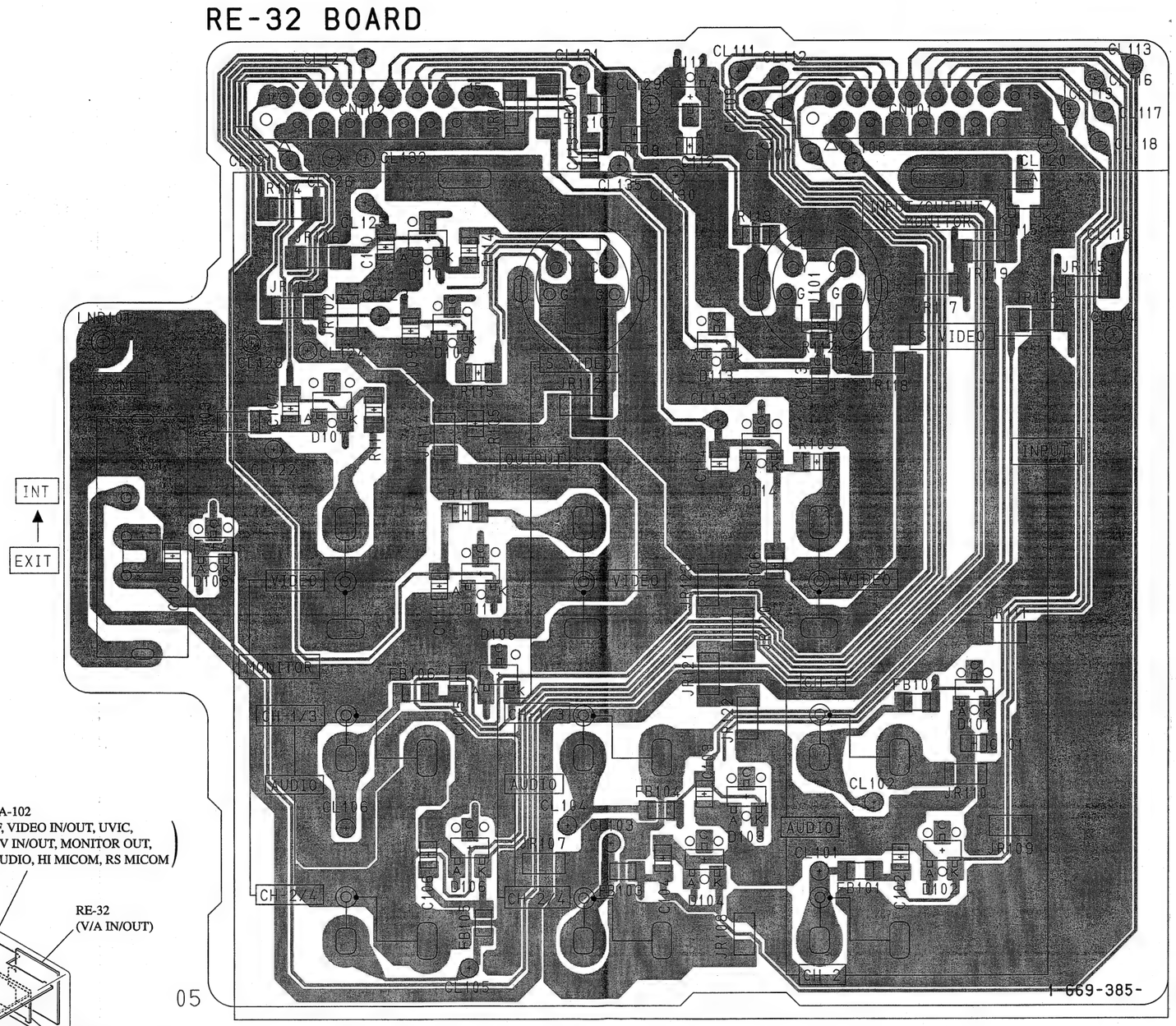
	AUDIO SIGNAL
REC	➡
PB	⇨

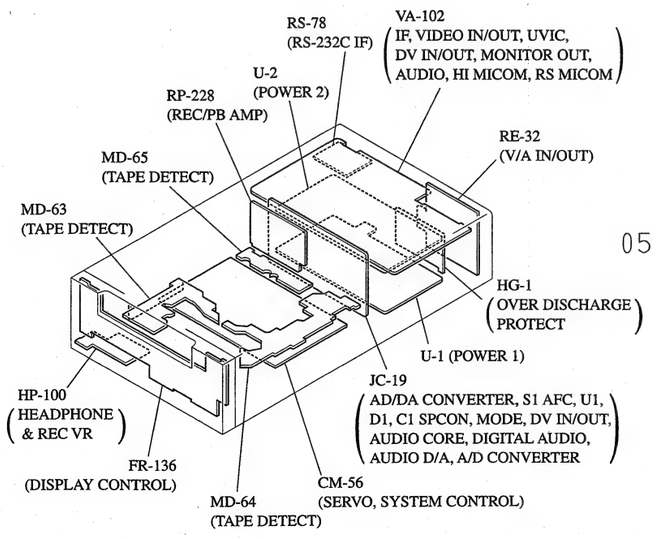
05

RE-32 (V/A IN/OUT) PRINTED WIRING BOARD

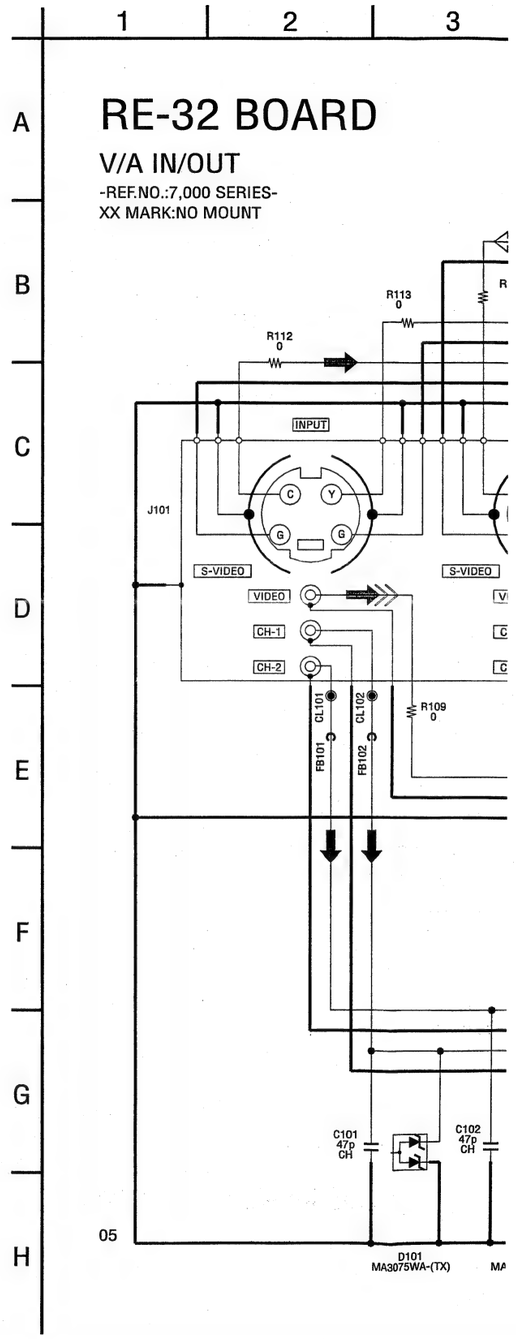
– Ref. No.: RE-32 board; 7,000 series –

• **For Printed Wiring Board.**
• There are few cases that the part isn't mounted in this model is printed on this diagram.





RE-32 (V/A IN/OUT) SCHEMATIC DIAGRAM



SCHEMATIC DIAGRAM

2 3 4 5 6 7 8 9 10 11 12 13 14 15

A B C D E F G H

BOARD

IT
SERIES-
OUNT

INPUT
OUTPUT
/IDEO
S-VIDEO
MONITOR
VIDEO
CH-1
CH-2
CH-1/3
CH-2/4

R112 0
R113 0
R114 0
R115 0
R109 0
R110 0
R111 0
R105 0
C115 0.1u F
R106 75
R107 75
R108 75

CL101 CL102 CL103 CL104 CL105 CL106 CL107 CL108 CL109 CL110 CL111 CL112 CL113 CL114 CL115 CL116 CL117 CL118 CL119 CL120 CL121 CL122 CL123 CL124 CL125 CL126 CL127 CL128 CL129 CL130 CL131 CL132 CL133 CL134 CL135

FB101 FB102 FB103 FB104 FB105 FB106

EE

D101 MA3075WA-(TX)
D102 MA3075WA-(TX)
D103 MA3075WA-(TX)
D104 MA3075WA-(TX)
D105 MA3075WA-(TX)
D106 MA3075WA-(TX)
D107 MA3075WA-(TX)
D108 MA3075WA-(TX)
D109 MA3075WA-(TX)
D110 MA3075WA-(TX)
D111 MA3075WA-(TX)
D112 MA3075WA-(TX)
D113 MA3075WA-(TX)
D114 MA3075WA-(TX)
D115 MA3075WA-(TX)

C101 47p CH
C102 47p CH
C103 47p CH
C104 47p CH
C105 47p CH
C106 47p CH
C108 0.022u B

S101
SYNC
INT ← EXT

CN102 15P

1	MONITOR OUT
2	GND
3	Y OUT
4	GND
5	C OUT
6	GND
7	V OUT
8	GND
9	Y IN
10	GND
11	C IN
12	GND
13	V IN
14	GND
15	SDC DET

VA-102 BOARD(3/8)
CN401
(SEE PAGE 4-77)

CN101 15P

1	EXT/XINT SYNC
2	GND
3	A.MON_R
4	GND
5	A.MON_L
6	GND
7	A.OUT_R
8	GND
9	A.OUT_L
10	GND
11	A.IN_R
12	GND
13	A.IN_L
14	GND
15	GND

VA-102 BOARD(6/8)
CN703
(SEE PAGE 4-85)

SIGNAL PATH

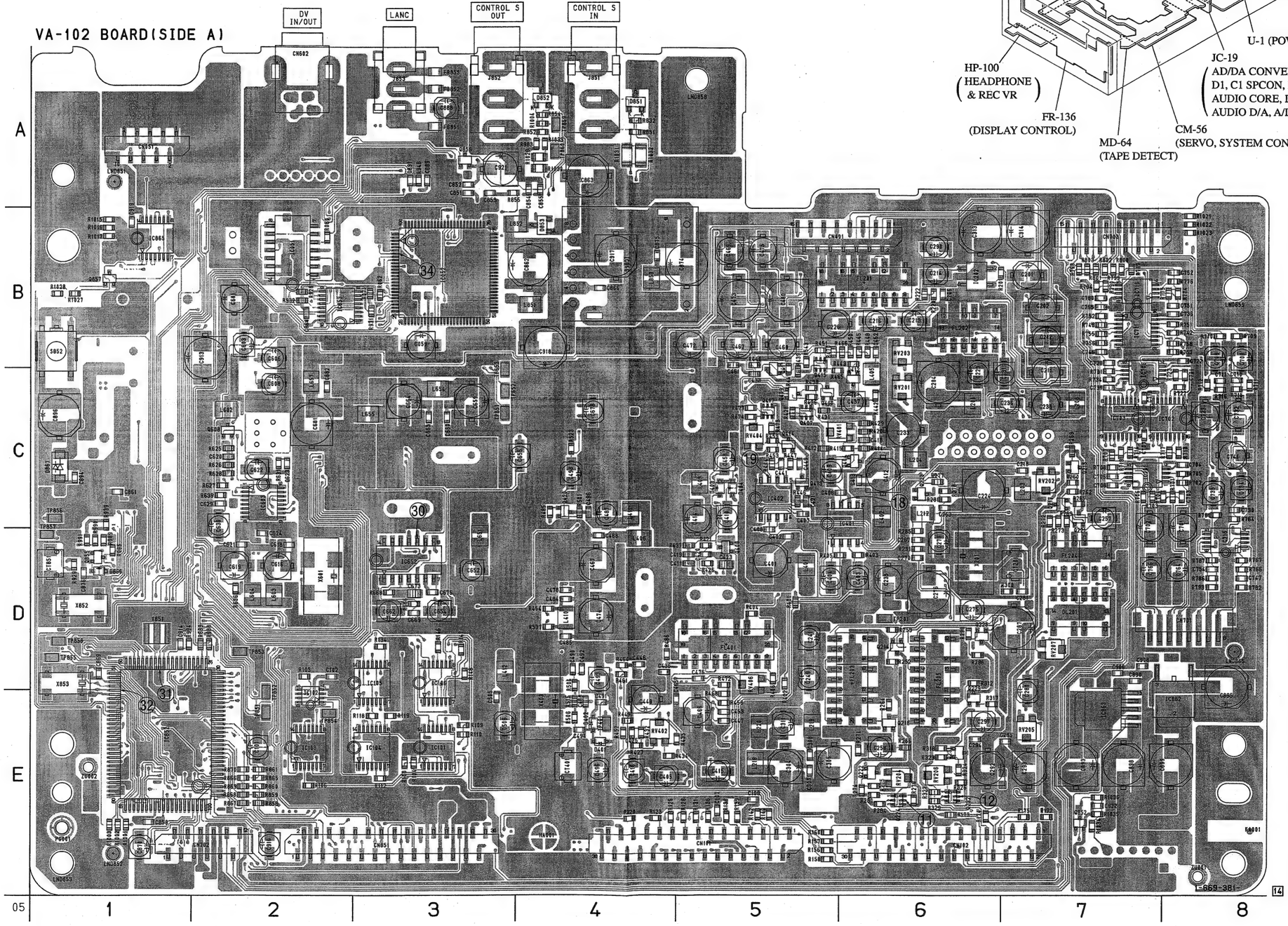
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡	➡	➡
PB	⇨	⇨	⇨	⇨

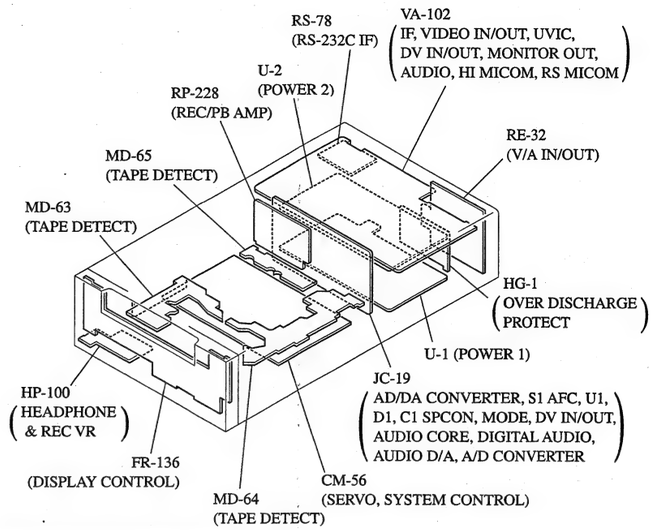
VA-102 (IF, VIDEO IN/OUT, UVIC, DV IN/OUT, MONITOR OUT, AUDIO, HI MICOM, RS MICOM) PRINTED WIRING BOARD

– Ref. No.: VA-102 board; 1,000 series –

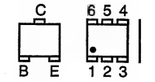
VA-102 BOARD (SIDE A)

CN051	A-1
CN101	E-5
CN102	E-6
CN401	B-5
CN602	A-2
CN701	D-8
CN702	E-2
CN703	B-7
CN851	E-3
D401	E-4
D403	C-5
D404	C-5
D851	A-4
D852	A-4
D853	B-4
D866	D-1
D867	C-1
IC051	B-2
IC052	B-3
IC101	E-3
IC102	E-2
IC103	E-2
IC104	E-3
IC105	D-3
IC106	D-3
IC202	B-6
IC401	C-6
IC402	C-5
IC652	D-3
IC701	C-7
IC702	C-8
IC703	C-7
IC706	C-7
IC711	B-7
IC715	D-8
IC716	B-7
IC852	E-1
IC853	B-2
IC856	B-4
IC862	E-8
IC863	E-7
IC865	B-1
Q214	D-6
Q215	C-7
Q217	C-7
Q218	E-6
Q221	C-7
Q222	E-6
Q223	C-6
Q224	E-6
Q225	D-6
Q229	E-6
Q231	E-6
Q232	E-6
Q404	C-6
Q407	C-5
Q408	D-5
Q409	C-5
Q410	C-5
Q411	B-5
Q412	C-6
Q413	C-5
Q414	C-5
Q415	B-5
Q417	C-5
Q420	C-4
Q852	E-7
Q855	D-1
Q856	A-3
Q857	B-1





- For Printed Wiri
- VA-102 board is of layers 2 to 5 h
- There are few ca is printed on this
- Chip transistor



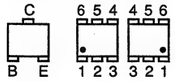
T,
COM)

T)

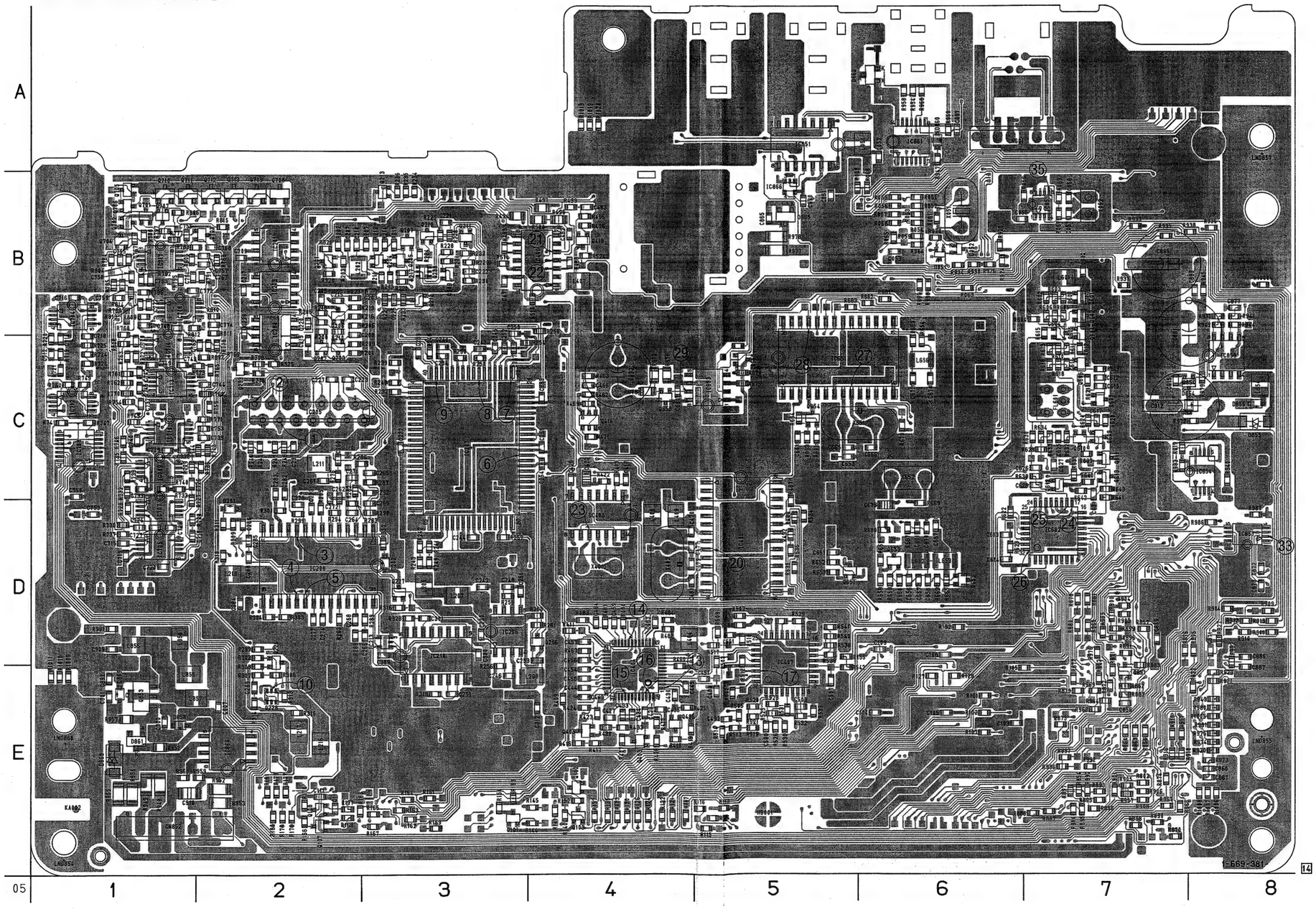
HARGE)

U1,
OUT,
D,)

- **For Printed Wiring Board.**
- VA-102 board is six-layer print board. However, the patterns of layers 2 to 5 have not been included in the diagram.
- There are few cases that the part isn't mounted in this model is printed on this diagram.
- Chip transistor



VA-102 BOARD(SIDE B)



VA-102 BOARD (SIDE B)

CN601	A-6	Q103	E-4
CN852	E-1	Q107	E-2
		Q108	E-2
D051	B-6	Q201	B-2
D052	B-6	Q202	C-2
D201	D-2	Q203	C-2
D202	D-3	Q204	B-3
D855	C-8	Q205	B-3
D856	C-8	Q206	B-2
D858	E-1	Q207	B-3
D859	E-1	Q208	B-3
D861	E-1	Q209	B-3
D862	A-6	Q210	B-3
D863	E-1	Q211	B-3
D864	C-8	Q212	B-3
		Q213	B-3
IC053	B-7	Q216	D-4
IC201	B-2	Q226	D-2
IC203	B-2	Q227	D-3
IC204	B-2	Q228	E-2
IC205	C-2	Q233	C-2
IC206	D-3	Q403	E-4
IC207	C-3	Q405	E-4
IC208	D-2	Q406	E-4
IC210	D-3	Q416	C-4
IC213	D-3	Q419	B-4
IC403	D-4	Q601	B-7
IC404	E-4	Q602	B-7
IC405	D-5	Q604	B-7
IC406	B-4	Q605	B-7
IC407	D-5	Q606	C-7
IC602	D-7	Q607	C-7
IC651	C-5	Q613	C-7
IC653	C-5	Q651	D-5
IC704	B-1	Q653	D-6
IC705	D-1	Q655	D-6
IC707	D-1	Q656	C-5
IC708	C-1	Q658	C-4
IC709	C-1	Q701	B-1
IC710	C-1	Q702	B-1
IC712	C-1	Q703	B-2
IC713	C-1	Q704	B-1
IC714	C-1	Q705	B-1
IC717	B-1	Q706	B-1
IC718	B-1	Q707	B-1
IC851	A-5	Q708	B-2
IC854	C-8	Q709	B-2
IC857	D-8	Q710	B-1
IC858	C-8	Q711	B-1
IC861	A-6	Q712	B-2
IC864	E-2	Q713	B-2
IC866	B-5	Q851	E-7
		Q853	E-1
Q101	E-3	Q854	C-8
Q102	E-4		

VA-102 (IF) SCHEMATIC DIAGRAM

VA-102 BOARD(1/8)

IF

-REF.NO.:1,000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R:REC MODE
P:PB MODE
*:IMPOSSIBLE TO MEASURE THE VOLTAGE AT THE MARKED POINTS.

JC-19 BOARD(1/10) CN103 (SEE PAGE 4-19)

JC-19 BOARD(1/10) CN104 (SEE PAGE 4-19)

IC101 TC74VHC08FT(EL) IC101
IC102 TC7W125FU-TE12R IC102
IC103 TC74VHC125FS(EL) IC103
IC104 TC74VHCT08FS(EL) IC104
IC105 TC74VHCT08FS(EL) IC105
IC106 TC74VHCT08FS(EL) IC106

Q101 UN5211-TX
Q102 UN5211-TX
Q103 UN5211-TX
Q107 UN5211-TX
Q108 UN5211-TX

DSR-20MDP

① VA-102 BOARD(7/8) (SEE PAGE 4-86,88)
② VA-102 BOARD(4/8) (SEE PAGE 4-80)
③ VA-102 BOARD(6/8) (SEE PAGE 4-83)
④ VA-102 BOARD(3/8) (SEE PAGE 4-77)
⑤ VA-102 BOARD(3/8) (SEE PAGE 4-75)
⑥ VA-102 BOARD(2/8) (SEE PAGE 4-74)

SIGNAL PATH

	VIDEO SIGNAL	
	CHROMA	Y
REC	➡	➡
PB	⇨	⇨

VA-102 (IF) SCHEMATIC DIAGRAM

VA-102 BOARD(1/8)

IF

-REF.NO.:1,000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R:REC MODE
P:PB MODE
✱:IMPOSSIBLE TO MEASURE THE VOLTAGE AT THE MARKED POINTS.

JC-19 BOARD(1/10) CN103 (SEE PAGE 4-19)

JC-19 BOARD(1/10) CN104 (SEE PAGE 4-19)

IC101 TC74VHC08FT(EL) IC101
IC102 TC7W125FU-TE12R IC102
IC103 TC74VHC125FS(EL) IC103
IC104 TC74VHCT08FS(EL) IC104
IC105 TC74VHCT08FS(EL) IC105
IC106 TC74VHCT08FS(EL) IC106

Q101 UN5211-TX
Q102 UN5211-TX
Q103 UN5211-TX
Q107 UN5211-TX
Q108 UN5211-TX

DSR-20MDP

① VA-102 BOARD(7/8) (SEE PAGE 4-86,88)
② VA-102 BOARD(4/8) (SEE PAGE 4-80)
③ VA-102 BOARD(5/8) (SEE PAGE 4-83)
④ VA-102 BOARD(3/8) (SEE PAGE 4-77)
⑤ VA-102 BOARD(3/8) (SEE PAGE 4-75)
⑥ VA-102 BOARD(2/8) (SEE PAGE 4-74)

SIGNAL PATH

	VIDEO SIGNAL	
	CHROMA	Y
REC	➡	➡
PB	⇨	⇨

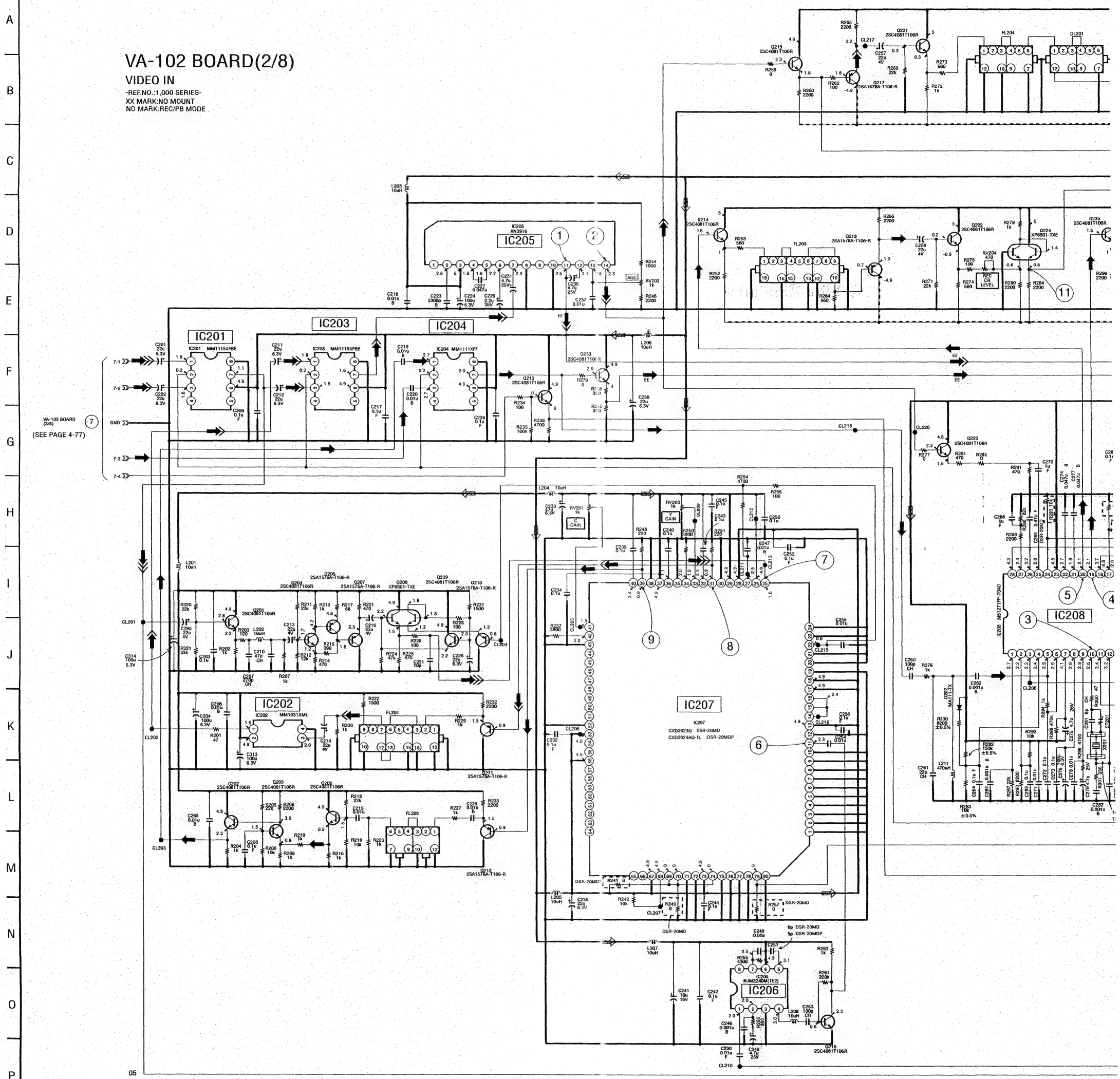
VA-102 (VIDEO IN) SCHEMATIC DIAGRAM

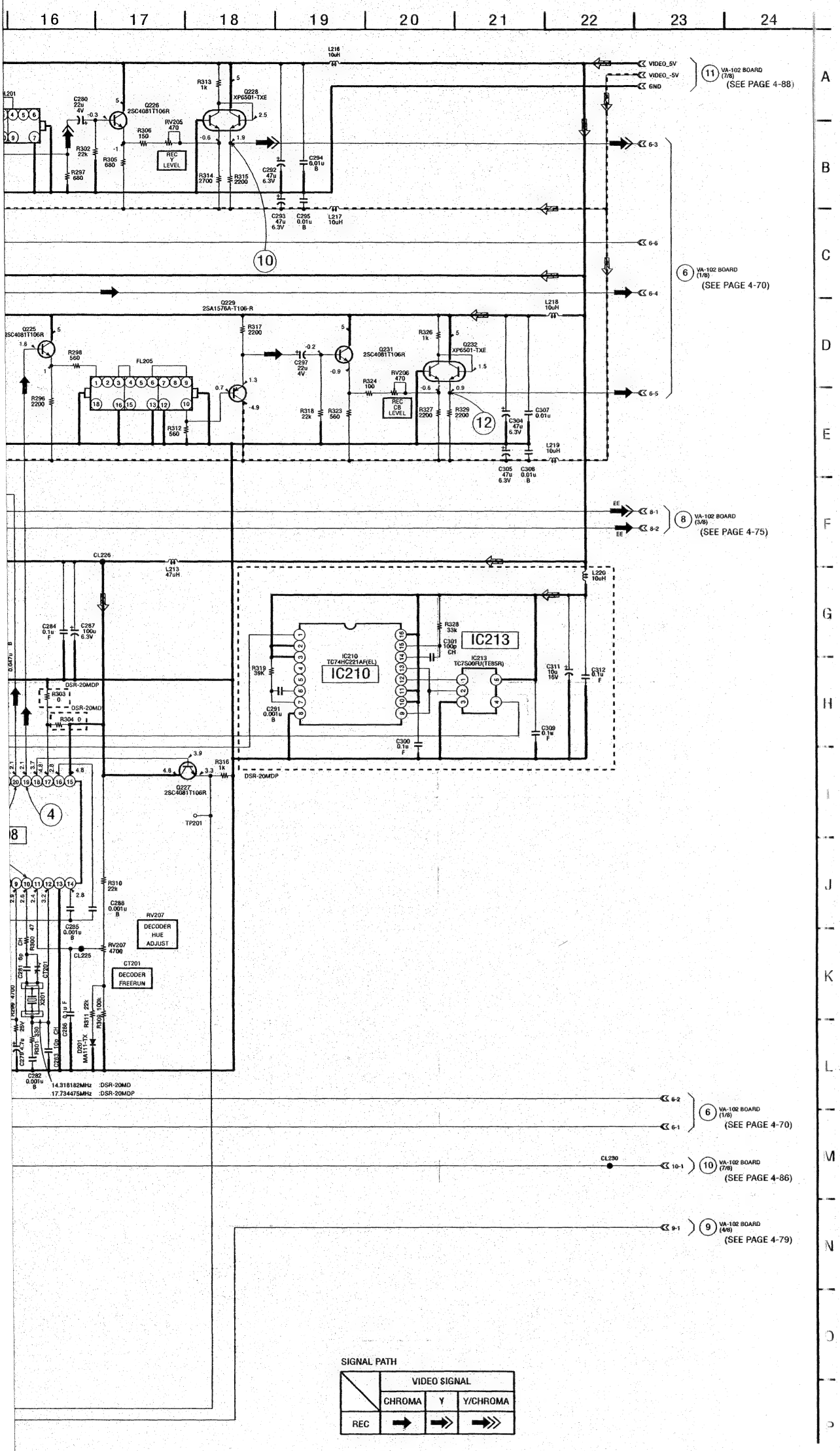
• See page 4-65 for VA-102 printed wiring board.

VA-102 BOARD(2/8)

VIDEO IN

-REF.NO.:1,000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE





SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	➡	➡	➡

VA-102 BOARD (2/8)

❶ 0.46 Vp-p
H
IC205 ⑪ REC

❷ 1.8 Vp-p
H
IC205 ⑭ REC

❸ 0.8 Vp-p
DSR-20MD: 14.32 MHz
DSR-20MDP: 17.73 MHz
IC208 ⑩ REC/PB

❹ 0.7 Vp-p
H
IC208 ⑲ REC

❺ 0.5 Vp-p
H
IC208 ⑳ REC

❻ 0.8 Vp-p
DSR-20MD: 14.32 MHz
DSR-20MDP: 17.73 MHz
IC207 ⑪ REC/PB

❼ 0.4 Vp-p
H
IC207 ㉕ REC

❽ 0.4 Vp-p
H
IC207 ㉛ REC

❾ 0.26 Vp-p
H
IC207 ㊴ REC

❿ 2.0 Vp-p
H
Q228 ⑤ REC/PB

⓫ 1.0 Vp-p
H
Q224 ⑤ REC

⓬ 1.0 Vp-p
H
Q232 ⑤ REC

VA-102 (VIDEO OUT) SCHEMATIC DIAGRAM

• See page 4-65 for VA-102 printed wiring board.

VA-102 BOARD(3/8)

VIDEO OUT
-REF.NO.:1,010 SERIES-
XX MARK:NOMOUNT

NO MARK:REC/PB MODE
R:REC MODE
P:PB MODE

VA-102 BOARD (1/8) (5) (SEE PAGE 4-70)
VA-102 BOARD (4/8) (14) (SEE PAGE 4-79)
VA-102 BOARD (7/8) (11) (SEE PAGE 4-88)
VA-102 BOARD (2/8) (8) (SEE PAGE 4-74)

IC401 MM1115FBE
IC402 MM1111XFF
IC403 LA7218M-TE-R
IC404 CXA1592R-T4

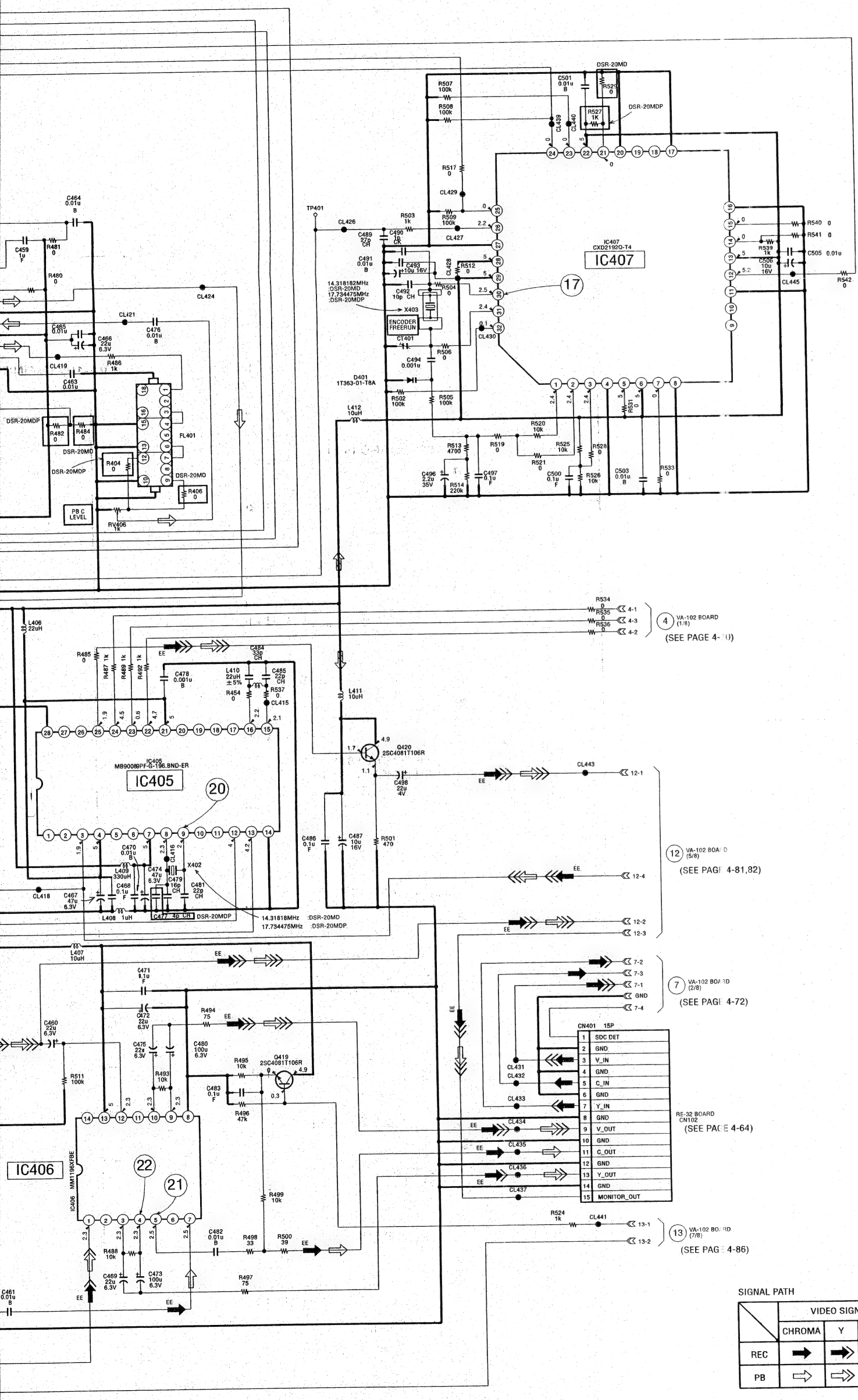
Q403 2SC4081T106R
Q405 2SC4081T106R
Q406 2SC4081T106R
Q407 XP6501-TXE
Q408 UN5213-TX
Q409 UN5211-TX
Q410 2SC4081T106R
Q411 2SC4081T106R
Q412 2SC4081T106R
Q413 2SC4081T106R
Q414 2SC4081T106R
Q415 XP6501-TXE
Q416 XN4601-TW
Q417 XP6501-TXE

D403 MA111-TX
D404 MA111-TX

X401 500kHz

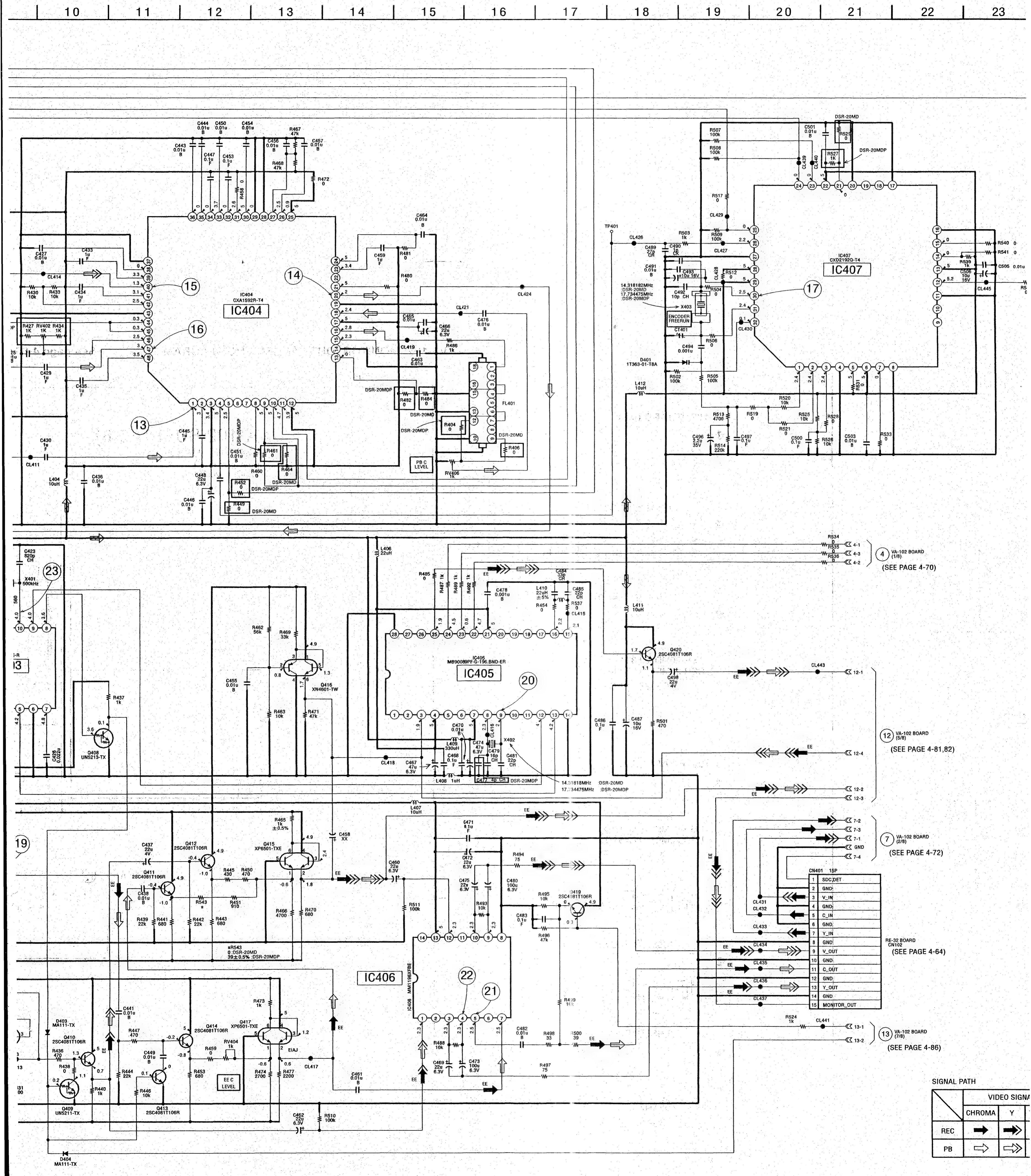
DSR-20MDP
DSR-20MD

15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24



SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	➡	➡	➡
PB	⇨	⇨	⇨



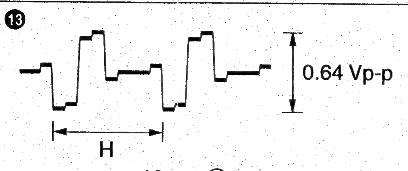
10 11 12 13 14 15 16 17 18 19 20 21 22 23
IC404
CXA1592R-T4
IC405
MB90089PF-G-196.BND-ER
IC406
MM1196XFBE
IC407
CXD2192Q-T4
FL401
CN401 15P
1 SDC_DET
2 GND
3 V_IN
4 GND
5 C_IN
6 GND
7 Y_IN
8 GND
9 V_OUT
10 GND
11 C_OUT
12 GND
13 Y_OUT
14 GND
15 MONITOR_OUT
RE-32 BOARD CN102
(SEE PAGE 4-64)
VA-102 BOARD (1/8)
(SEE PAGE 4-70)
VA-102 BOARD (5/8)
(SEE PAGE 4-81,82)
VA-102 BOARD (2/8)
(SEE PAGE 4-72)
VA-102 BOARD (7/8)
(SEE PAGE 4-86)
ENCODER FREERUN
PB C LEVEL
EE C LEVEL
14.318182MHz :DSR-20MD
17.734475MHz :DSR-20MDP
14.31818MHz :DSR-20MD
17.734475MHz :DSR-20MDP
*R543
0 :DSR-20MD
39±0.5% :DSR-20MDP
Q408 UN5213-TX
Q409 UN5211-TX
Q410 2SC4081T106R
Q411 2SC4081T106R
Q412 2SC4081T106R
Q413 2SC4081T106R
Q414 2SC4081T106R
Q415 XP6501-TXE
Q416 XN4601-TW
Q417 XP6501-TXE
Q419 2SC4081T106R
Q420 2SC4081T106R
D401 1T363-01-T8A
D403 MA111-TX
D404 MA111-TX
X401 500kHz
TP401
SIGNAL PATH
VIDEO SIGNA
CHROMA
Y
REC
PB

24

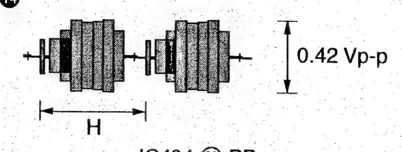
A B C D E F G H I J K L M N O P

SIGNAL	
Y	Y/CHROMA

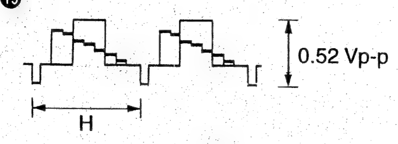
VA-102 BOARD (3/8)

⑬


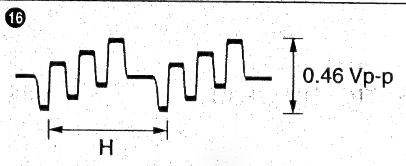
IC404 ① PB

⑭


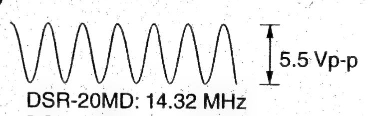
IC404 ⑳ PB

⑮


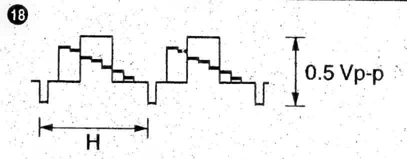
IC404 ㊵ PB

⑯


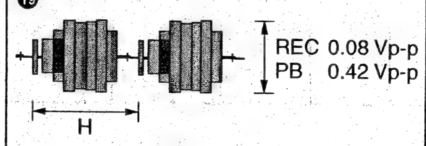
IC404 ㊼ PB

⑰


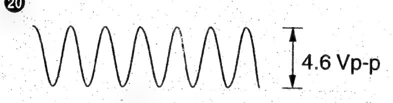
DSR-20MD: 14.32 MHz
DSR-20MDP: 17.73 MHz
IC407 ㉚ REC/PB

⑱


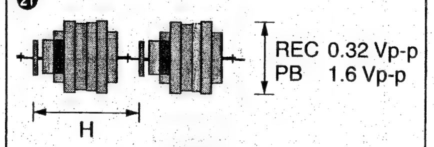
IC401 ⑦ REC/PB

⑲


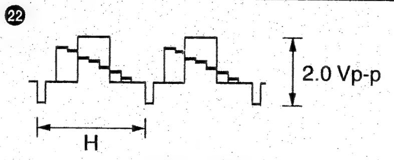
IC402 ⑦ REC/PB

⑳


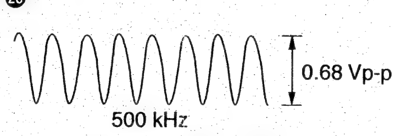
DSR-20MD: 14.32 MHz
DSR-20MDP: 17.73 MHz
IC405 ⑨ REC/PB

㉑


IC406 ⑤ REC/PB

㉒


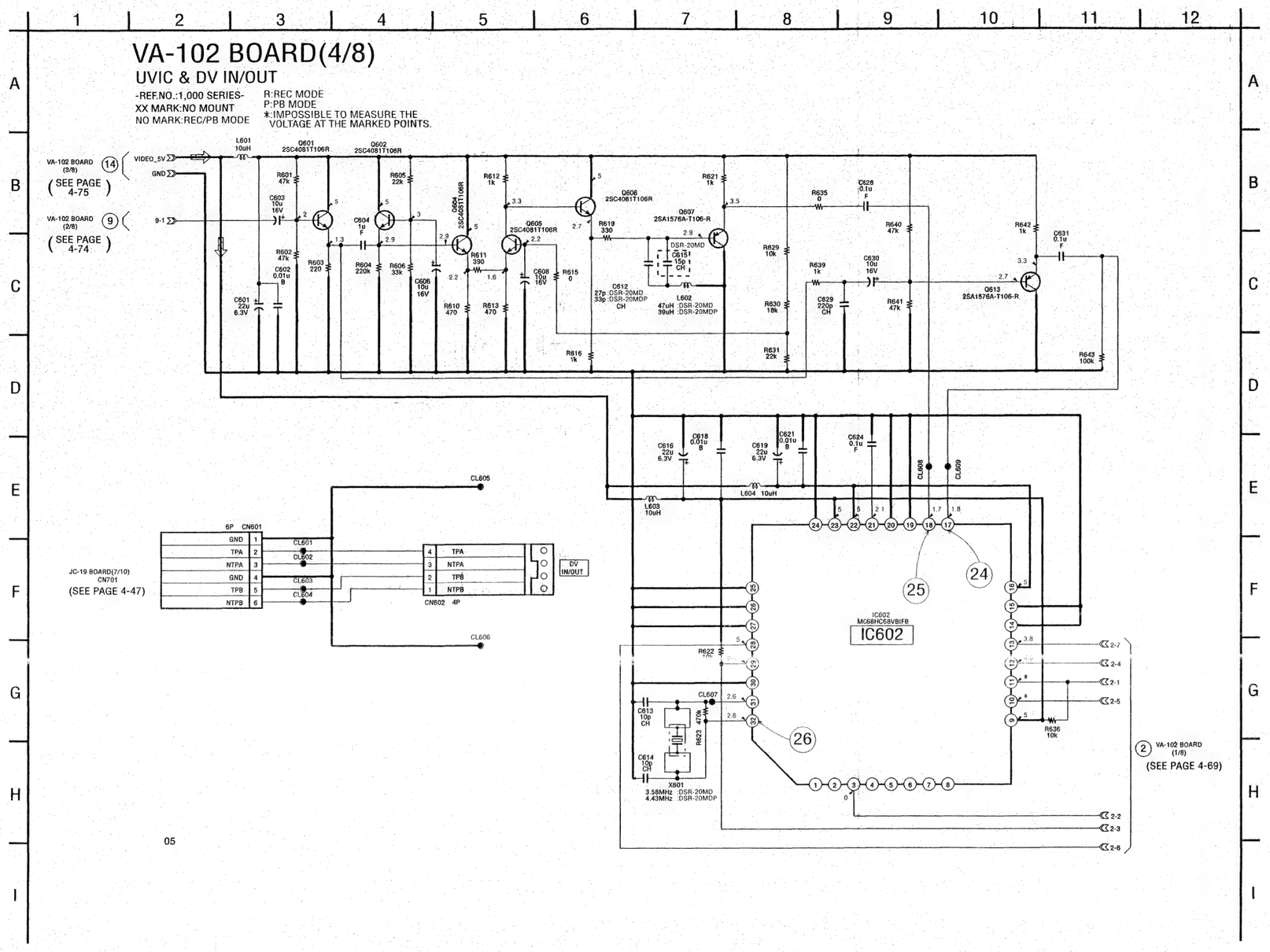
IC406 ④ REC/PB

㉓


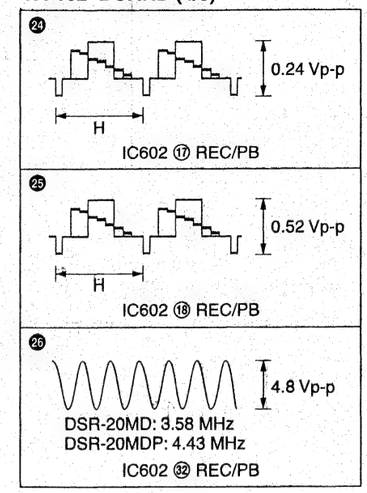
500 kHz
IC403 ⑩ REC/PB

VA-102 (UVIC & DV IN/OUT) SCHEMATIC DIAGRAM

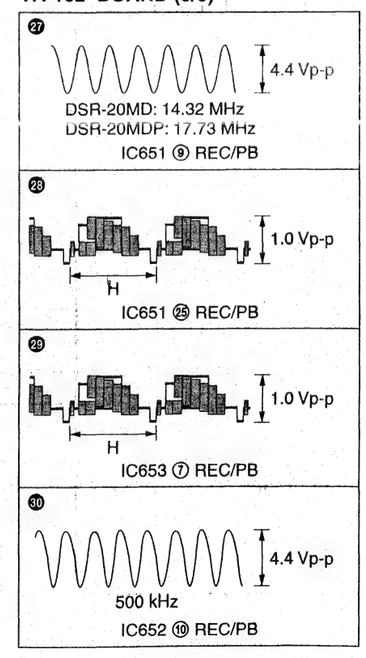
• See page 4-65 for VA-102 printed wiring board.



VA-102 BOARD (4/8)

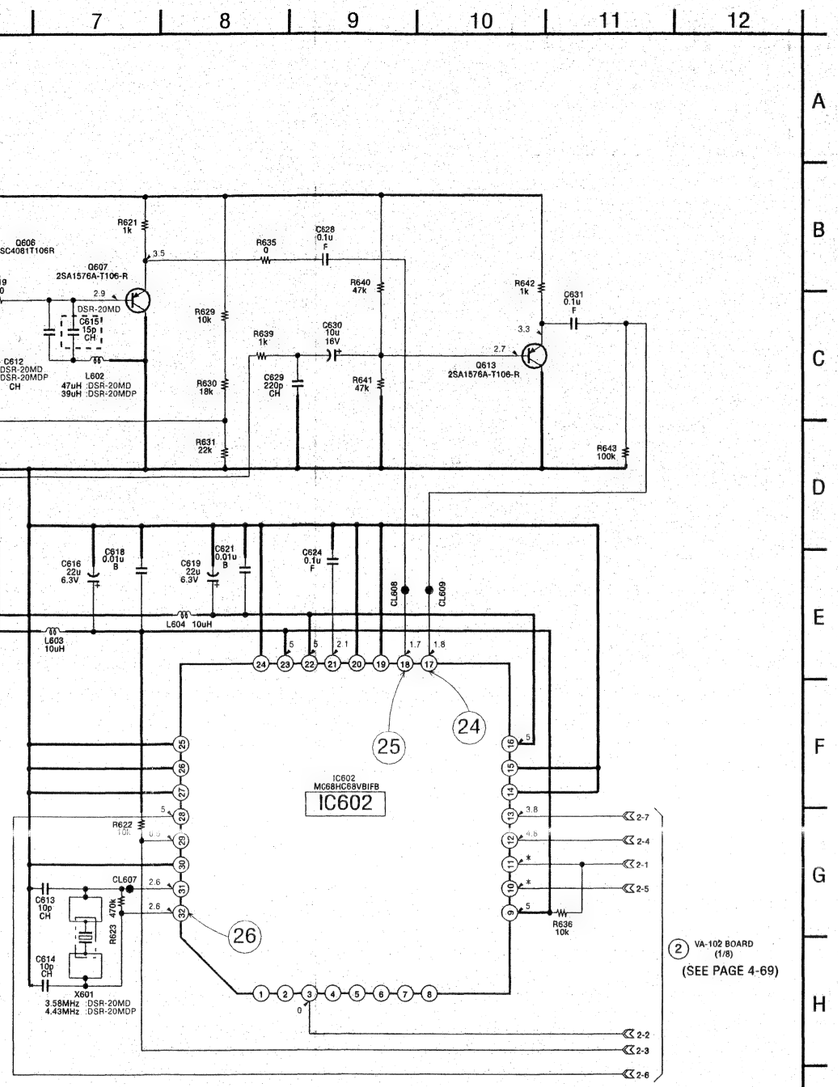


VA-102 BOARD (5/8)



UVIC & DV IN/OUT, MONITOR OUT
VA-102 (4/8) (5/8)

e page 4-65 for VA-102 printed wiring board.



VA-102 BOARD (4/8)

24 — 0.24 Vp-p, H
IC602 ⑰ REC/PB

25 — 0.52 Vp-p, H
IC602 ⑱ REC/PB

26 — 4.8 Vp-p
DSR-20MD: 3.58 MHz
DSR-20MDP: 4.43 MHz
IC602 ㉜ REC/PB

VA-102 BOARD (5/8)

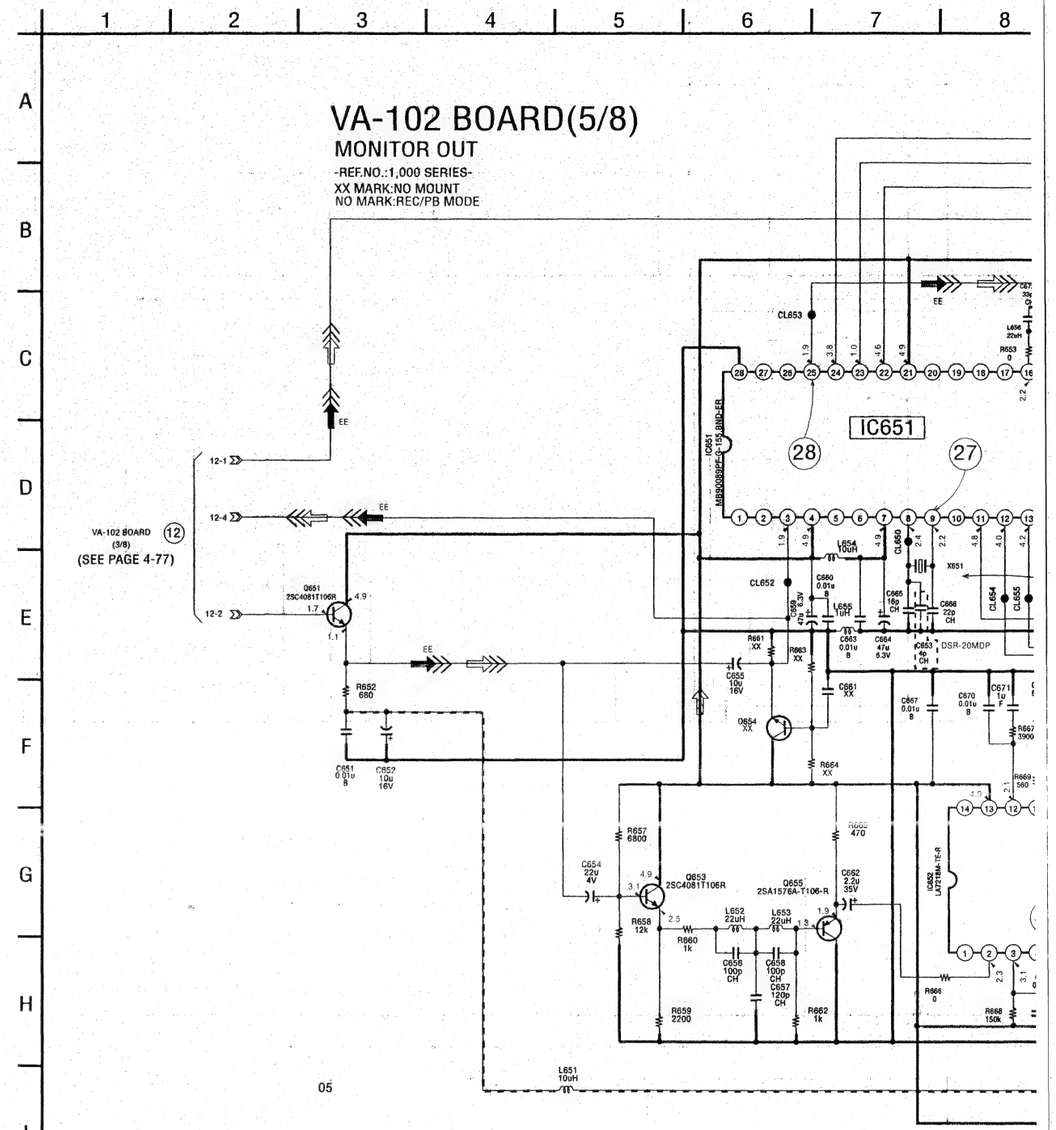
27 — 4.4 Vp-p
DSR-20MD: 14.32 MHz
DSR-20MDP: 17.73 MHz
IC651 ⑨ REC/PB

28 — 1.0 Vp-p, H
IC651 ㉕ REC/PB

29 — 1.0 Vp-p, H
IC653 ⑦ REC/PB

30 — 4.4 Vp-p
500 kHz
IC652 ⑩ REC/PB

• See page 4-65 for VA-102 printed wirin



VA-102 BOARD (4/8)

㉔ 0.24 Vp-p
H
IC602 ⑰ REC/PB

㉕ 0.52 Vp-p
H
IC602 ⑱ REC/PB

㉖ 4.8 Vp-p
DSR-20MD: 3.58 MHz
DSR-20MDP: 4.43 MHz
IC602 ㉜ REC/PB

VA-102 BOARD (5/8)

㉗ 4.4 Vp-p
DSR-20MD: 14.32 MHz
DSR-20MDP: 17.73 MHz
IC651 ⑨ REC/PB

㉘ 1.0 Vp-p
H
IC651 ㉕ REC/PB

㉙ 1.0 Vp-p
H
IC653 ⑦ REC/PB

㉚ 4.4 Vp-p
500 kHz
IC652 ⑩ REC/PB

② VA-102 BOARD (1/8) (SEE PAGE 4-69)

VA-102 BOARD(5/8)

MONITOR OUT

-REF.NO.:1,000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE

IC651 IC653 IC652

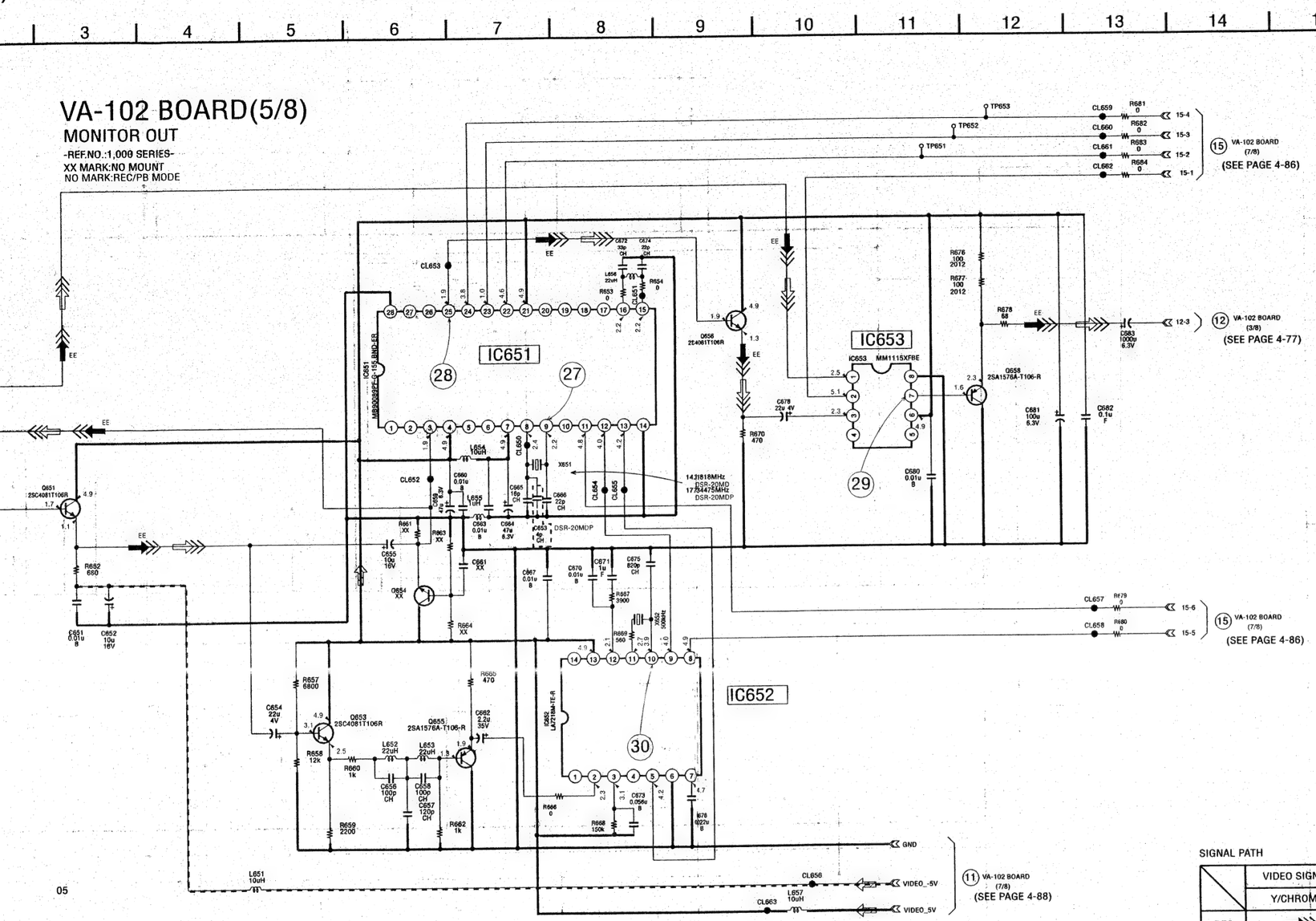
VA-102 BOARD (3/8) ⑫ (SEE PAGE 4-77)
⑪ VA-102 BOARD (7/8) (SEE PAGE 4-88)

• See page 4-65 for VA-102 printed wiring board.

VA-102 BOARD(5/8)

MONITOR OUT

-REF.NO.:1,000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE



05

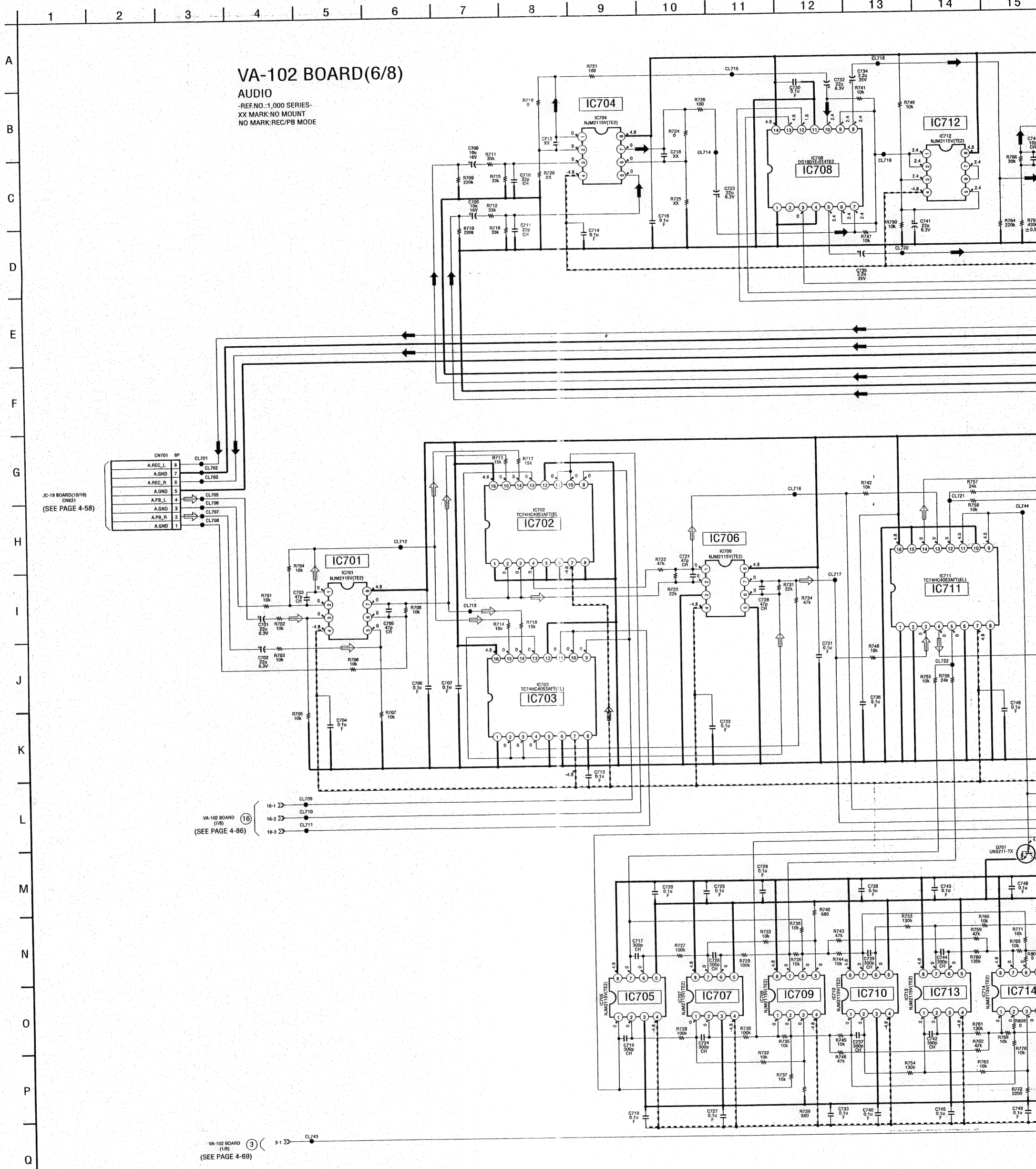
VA-102 (AUDIO) SCHEMATIC DIAGRAM

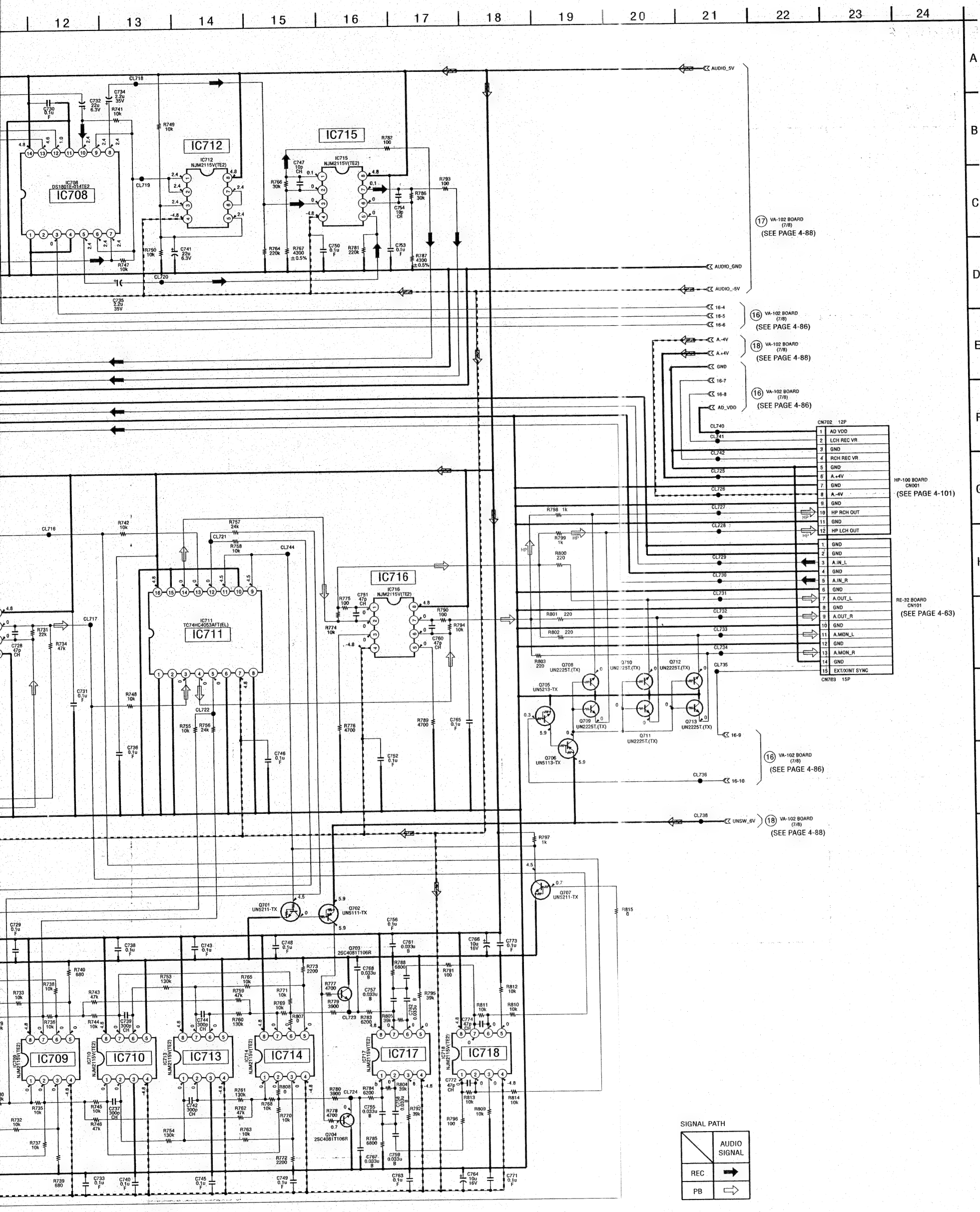
• See page 4-65 for VA-102 printed wiring board.

VA-102 BOARD(6/8)

AUDIO

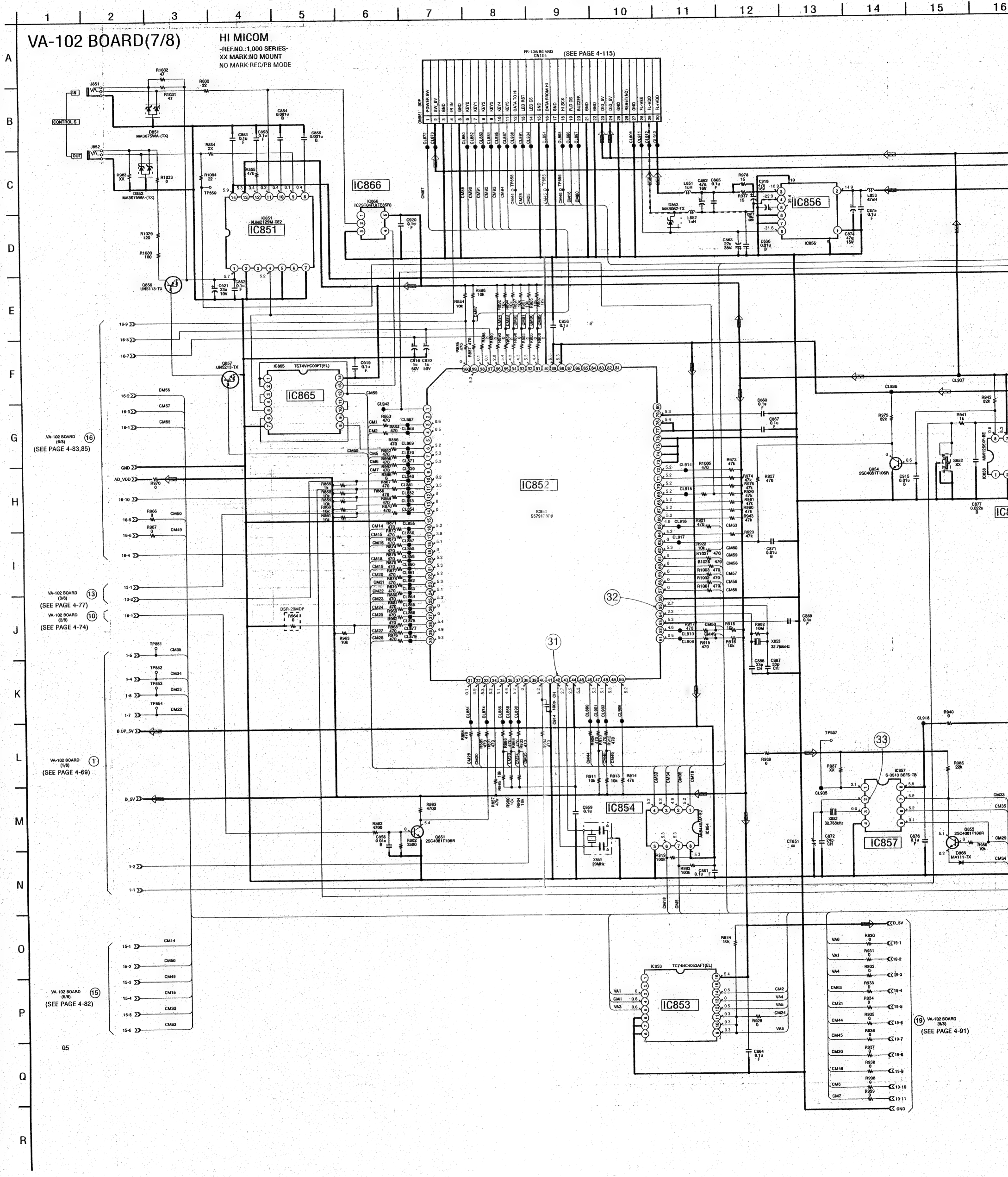
-REF.NO.:1,000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE

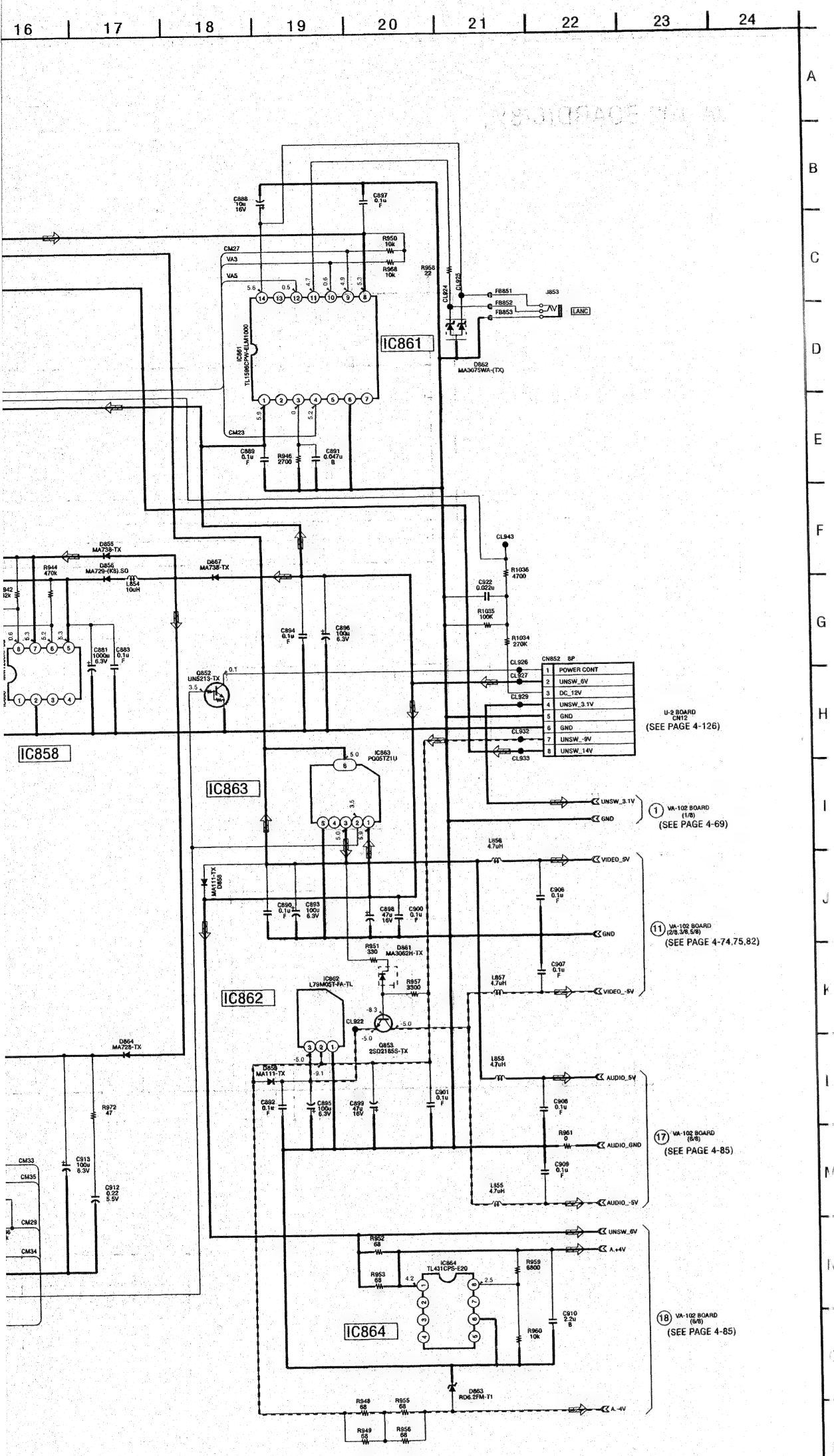



12 13 14 15 16 17 18 19 20 21 22 23 24
A B C D E F G H I J K L M N O P Q
IC708 DS1801E-014TE2
IC712 NJM2115V(TE2)
IC715 NJM2115V(TE2)
IC716 NJM2115V(TE2)
IC711 TC74HC4053AFT(EL)
IC709 NJM2115V(TE2)
IC710 NJM2115V(TE2)
IC713 NJM2115V(TE2)
IC714 NJM2115V(TE2)
IC717 NJM2115V(TE2)
IC718 NJM2115V(TE2)
AUDIO_5V
AUDIO_GND
AUDIO_-5V
17 VA-102 BOARD (7/8) (SEE PAGE 4-88)
16 VA-102 BOARD (7/8) (SEE PAGE 4-86)
18 VA-102 BOARD (7/8) (SEE PAGE 4-88)
16 VA-102 BOARD (7/8) (SEE PAGE 4-86)
CN702 12P
1 AD VDD
2 LCH REC VR
3 GND
4 RCH REC VR
5 GND
6 A.+4V
7 GND
8 A.-4V
9 GND
10 HP RCH OUT
11 GND
12 HP LCH OUT
HP-100 BOARD CN001 (SEE PAGE 4-101)
RE-32 BOARD CN101 (SEE PAGE 4-63)
CN703 15P
1 GND
2 GND
3 A.IN_L
4 GND
5 A.IN_R
6 GND
7 A.OUT_L
8 GND
9 A.OUT_R
10 GND
11 A.MON_L
12 GND
13 A.MON_R
14 GND
15 EXT/XINT SYNC
16 VA-102 BOARD (7/8) (SEE PAGE 4-86)
UNSW_6V
18 VA-102 BOARD (7/8) (SEE PAGE 4-88)
Q701 UN5211-TX
Q702 UN5111-TX
Q703 2SC4081T106R
Q704 2SC4081T106R
Q705 UN5213-TX
Q706 UN5113-TX
Q707 UN5211-TX
Q708 UN2225T.(TX)
Q709 UN2225T.(TX)
Q710 UN2225T.(TX)
Q711 UN2225T.(TX)
Q712 UN2225T.(TX)
Q713 UN2225T.(TX)
CL716 CL717 CL718 CL719 CL720 CL721 CL722 CL723 CL724 CL725 CL726 CL727 CL728 CL729 CL730 CL731 CL732 CL733 CL734 CL735 CL736 CL738 CL740 CL741 CL742 CL744
SIGNAL PATH
AUDIO SIGNAL
REC
PB

VA-102 (HI MICOM) SCHEMATIC DIAGRAM

• See page 4-65 for VA-102 printed wiring board.





VA-102 BOARD (7/8)

31

5 Vp-p

20 MHz

IC852 (42) REC/PB

32

5 Vp-p

32.768 kHz

IC852 (55) REC/PB

33

5 Vp-p

32.768 kHz

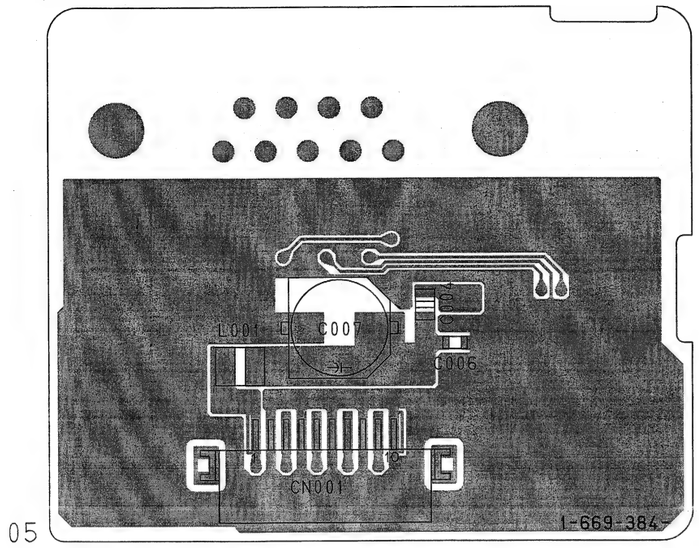
IC857 (2) REC/PB

RS-78 (RS-232C IF) PRINTED WIRING BOARD

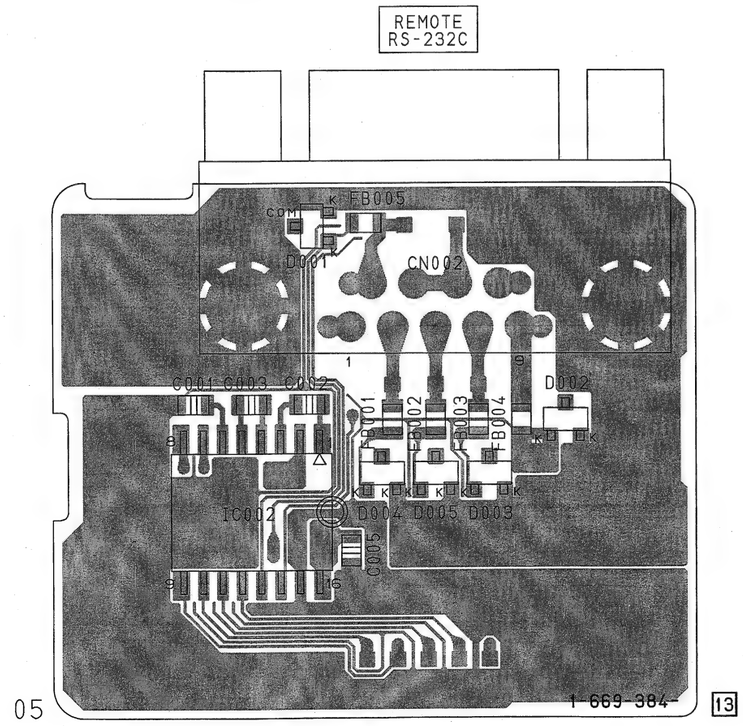
– Ref. No.: RS-78 board; 6,000 series –

- **For Printed Wiring Board.**
- There are few cases that the part isn't mounted in this model is printed on this diagram.

RS-78 BOARD(SIDE A)

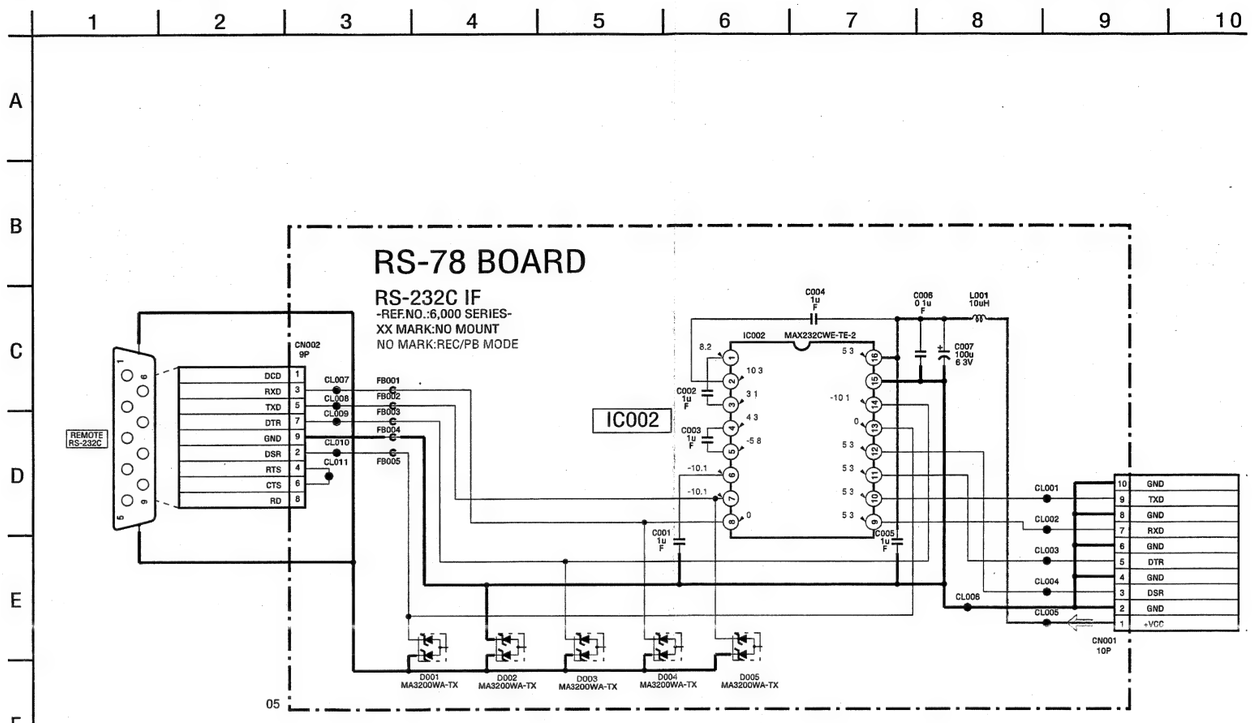


RS-78 BOARD(SIDE B)



RS-78 (RS-232C IF), VA-102 (RS MICOM) SCHEMATIC DIAGRAM

• See page 4-65 for VA-102 printed wiring board.



4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21

A B C D E F G H I J K

8 BOARD

C IF
00 SERIES-
O MOUNT
EC/PB MODE

IC002

C004 1u F
C006 0.1u F
L001 10uH
IC002 MAX232CWE-TE-2
C007 100u 6.3V
C002 1u F
C003 1u F
C001 1u F
IC005 1u F
CL001
CL002
CL003
CL004
CL005
CL006
CN001 10P
GND 10
TXD 9
GND 8
RXD 7
GND 6
DTR 5
GND 4
DSR 3
GND 2
+VCC 1
D002 MA3200WA-TX
D003 MA3200WA-TX
D004 MA3200WA-TX
D005 MA3200WA-TX

VA-102 BOARD(8/8)

RS MICOM
-REF.NO.:1,000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
*:IMPOSSIBLE TO MEASURE THE VOLTAGE AT THE MARKED POINTS.

CN051 10P
CL051
CL052
CL054
CL056
CL058
CL060
CL070
CL073
CL080

IC053
IC053 TC7WUO4FU(TE12R)
IC051 TC74HC74AF(EL)
IC051
R060 22
C055 0.1u F
R067 1M
X052 1 2288MHz
R069 560Ω
C057 100p CH
C058 100p CH
C056 0.1u F
35

R051 10k
R052 10k
R053 10k
R054 10k
R056 0
R066 22
34
X051 8MHz
R061 1M
L051 10uH
C051 0.47u F
C052 220p CH
R059 1500
IC052
IC052 HD6433837H-GDX1910
R070 10k
D052 MA132WA-TX
D051 MA132WA-TX
R071 10k
R062 22
R063 22
C053 0.47u F
C059 22u 6.3V
R065 0
DSR-20MDP

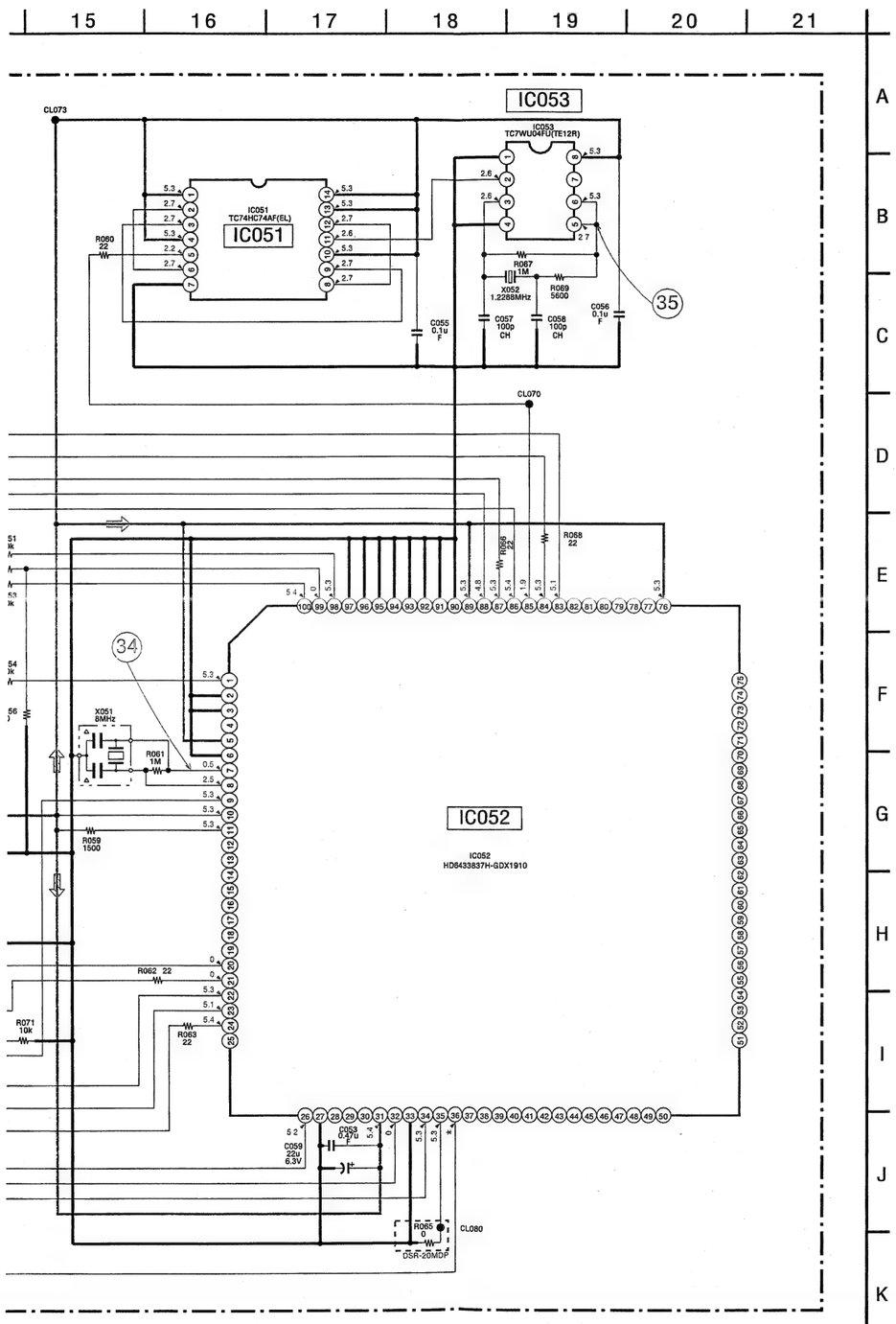
D_5V
GND
19-4
19-3
19-2
19-5
19-9
19-7
19-6
19-8
19-11
19-10
19-1

VA-102 BOARD (7/8) 19
(SEE PAGE 4-87)

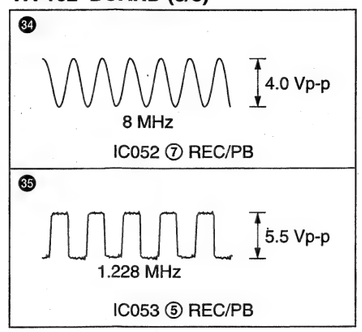
MD
(TA

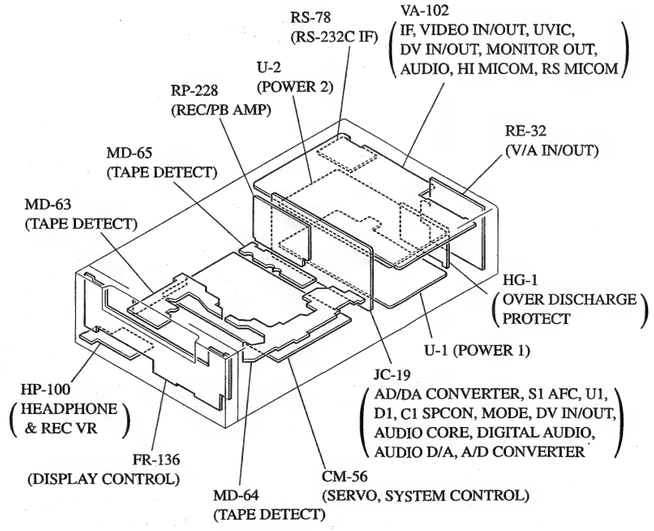
HP-
(HEA
& R

(DI



VA-102 BOARD (8/8)



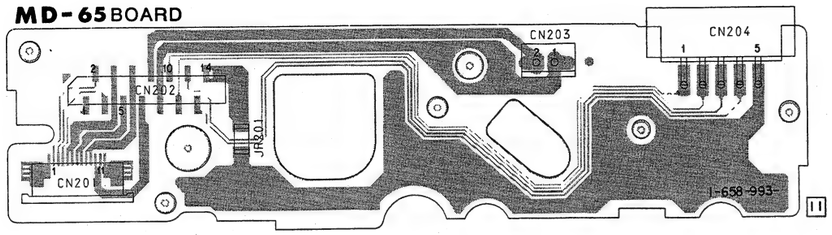


MD-63, MD-64, MD-65 (TAPE DETECT), FP-406 (TAPE SENSOR) PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAM

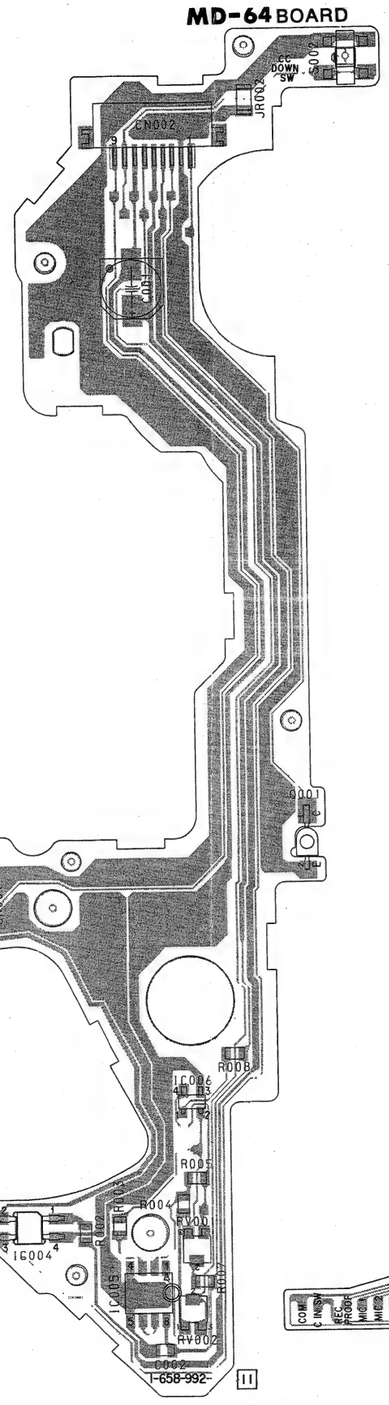
– Ref. No. : MD-63 board; 6,000/MD-64 board; 7,000/MD-65 board; 5,000/FP-406 boad; 5,000 series –

- **For Printed Wiring Board.**
- There are few cases that the part isn't mounted in this mod is printed on this diagram.

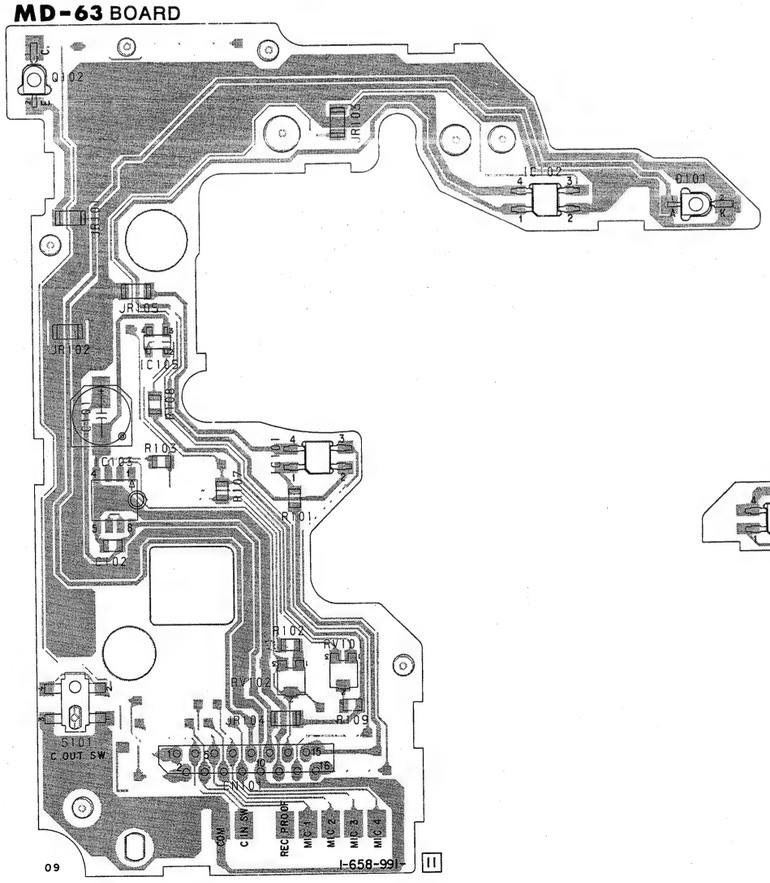
MD-65 BOARD



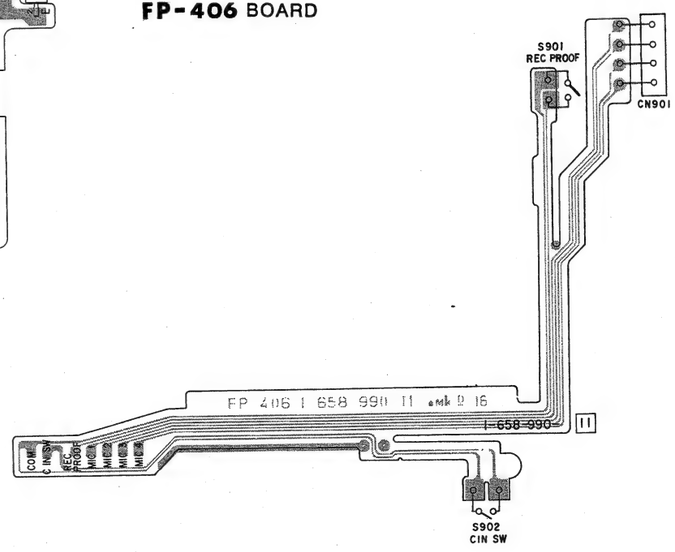
MD-64 BOARD

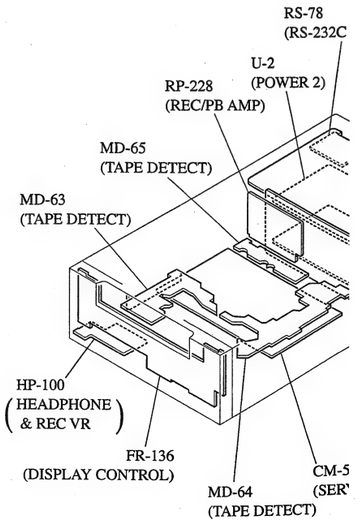


MD-63 BOARD

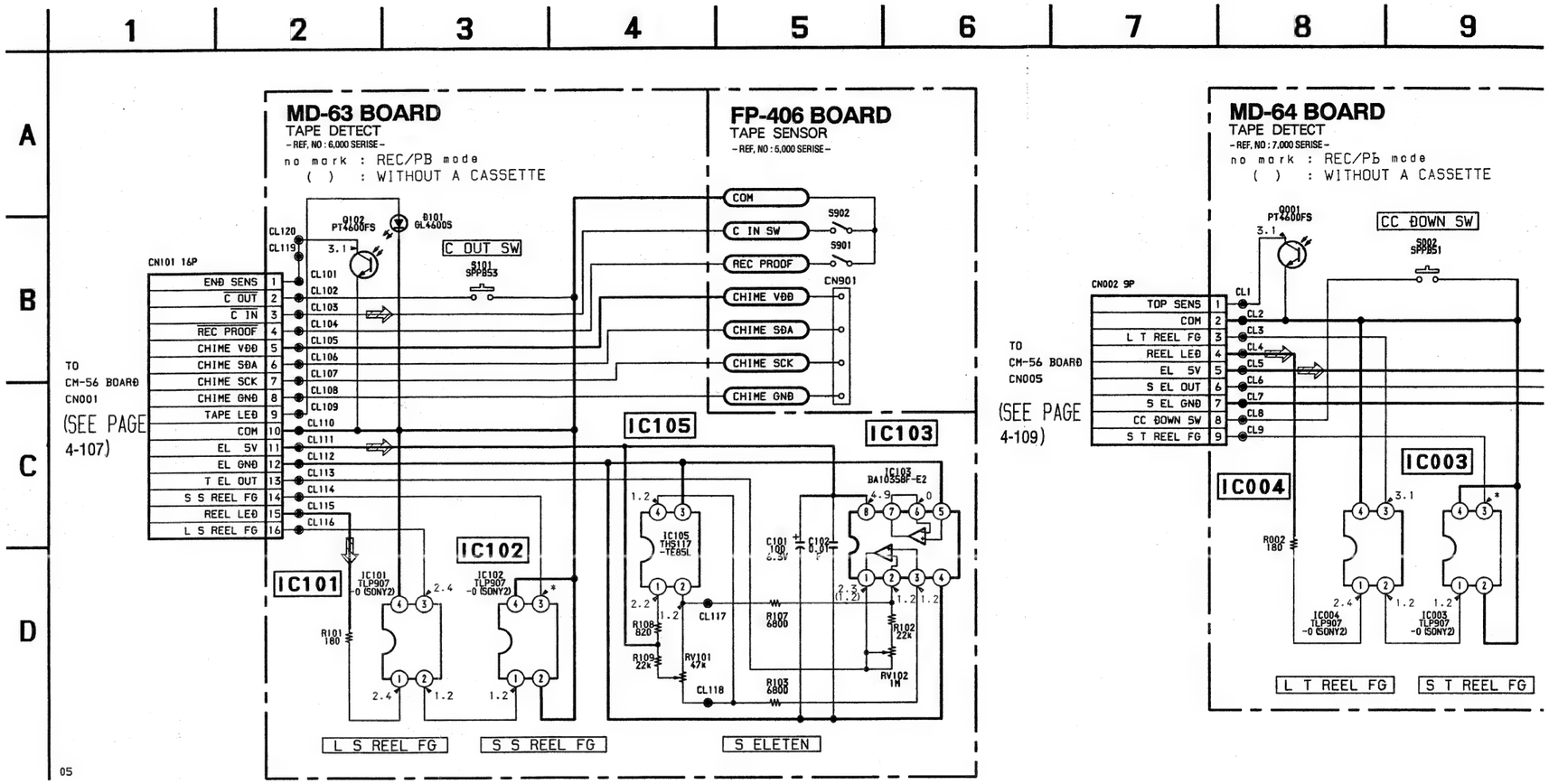


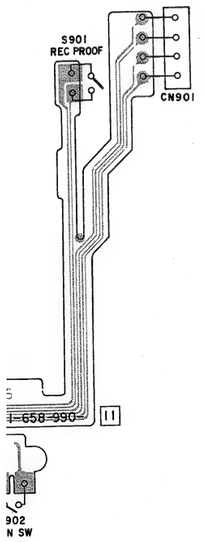
FP-406 BOARD

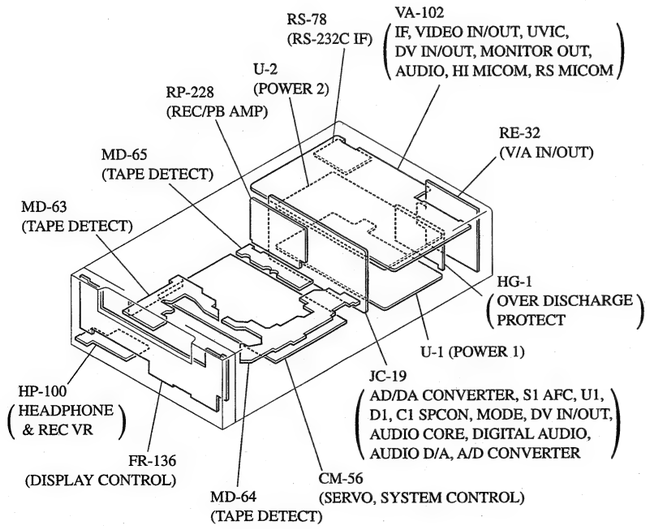


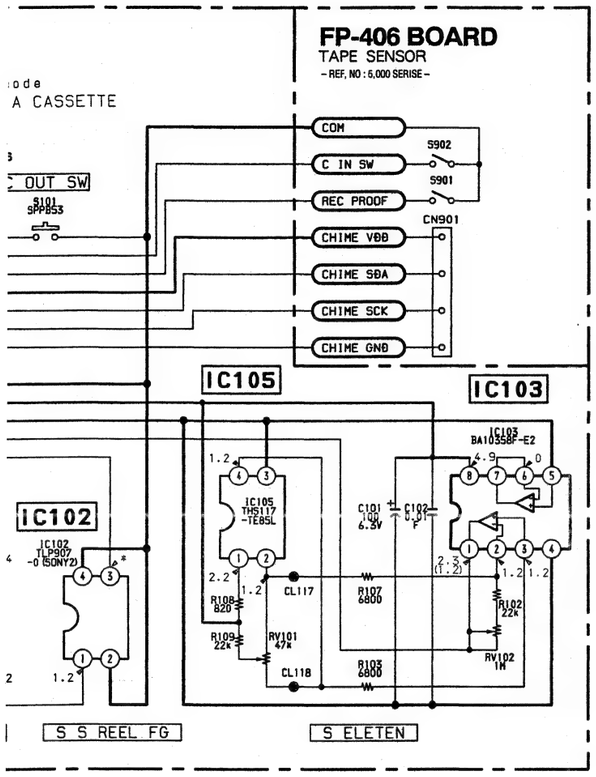


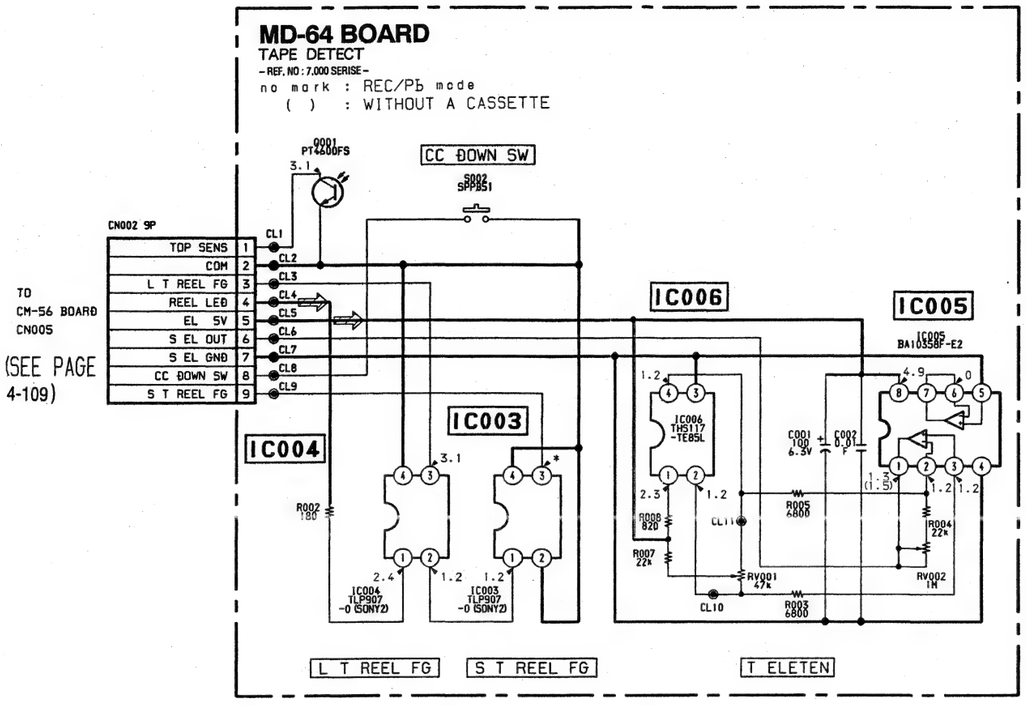
- **For Printed Wiring Board.**
- There are few cases that the part isn't mounted in this model is printed on this diagram.

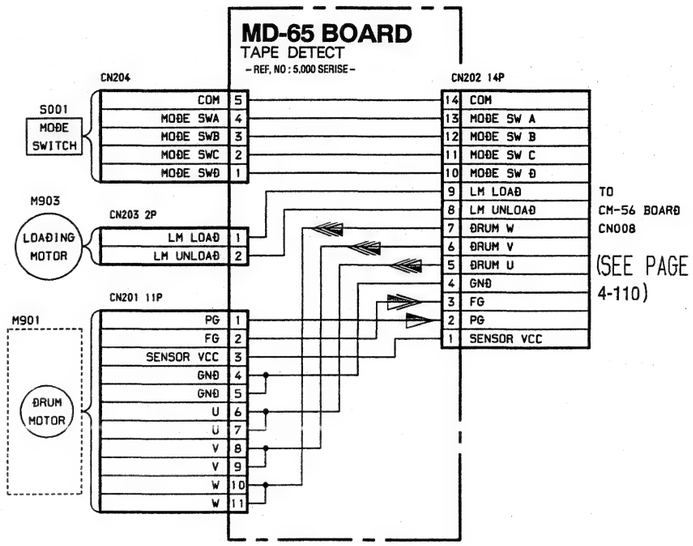










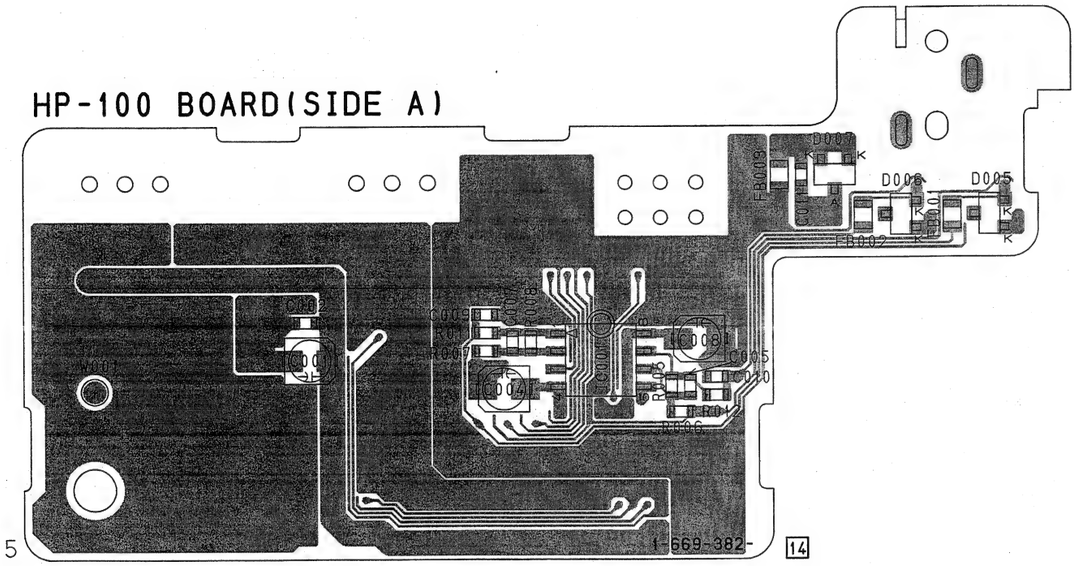


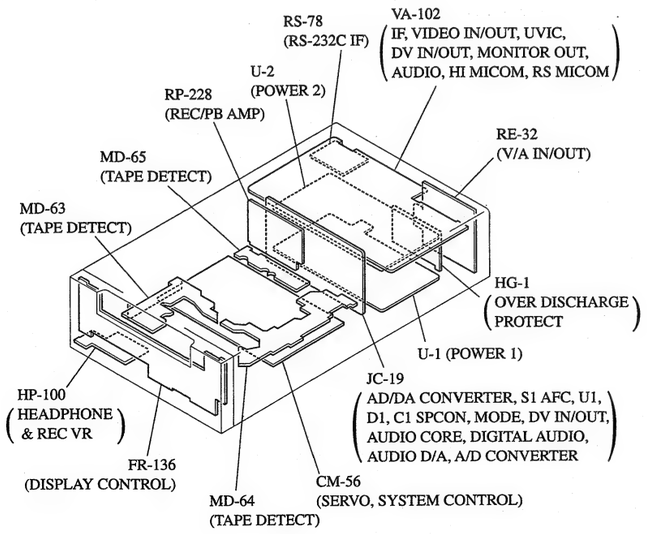
• SIGNAL PATH

	REC	REC/PB	PB
Drum speed servo		▷	
Drum phase servo		▷	
Drum servo (speed and phase)		▷	
Capstan speed servo			
Capstan phase servo			
Capstan servo (speed and phase)			
Ref. signal			

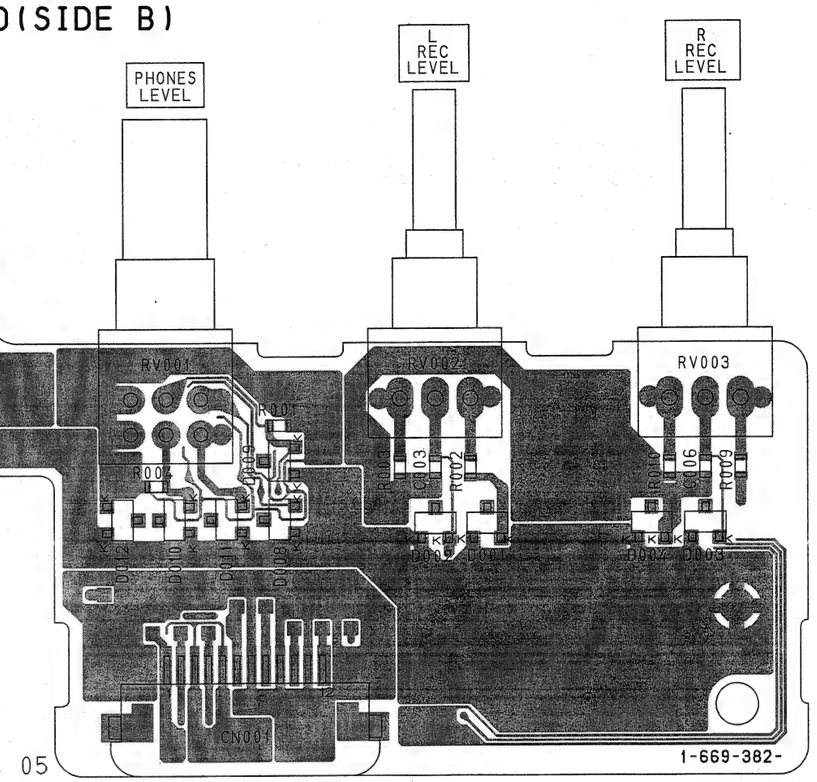
HP-100 (HEADPHONE & REC VR) PRINTED WIRING BOARD

– Ref. No.: HP-100 board; 5,000 series –

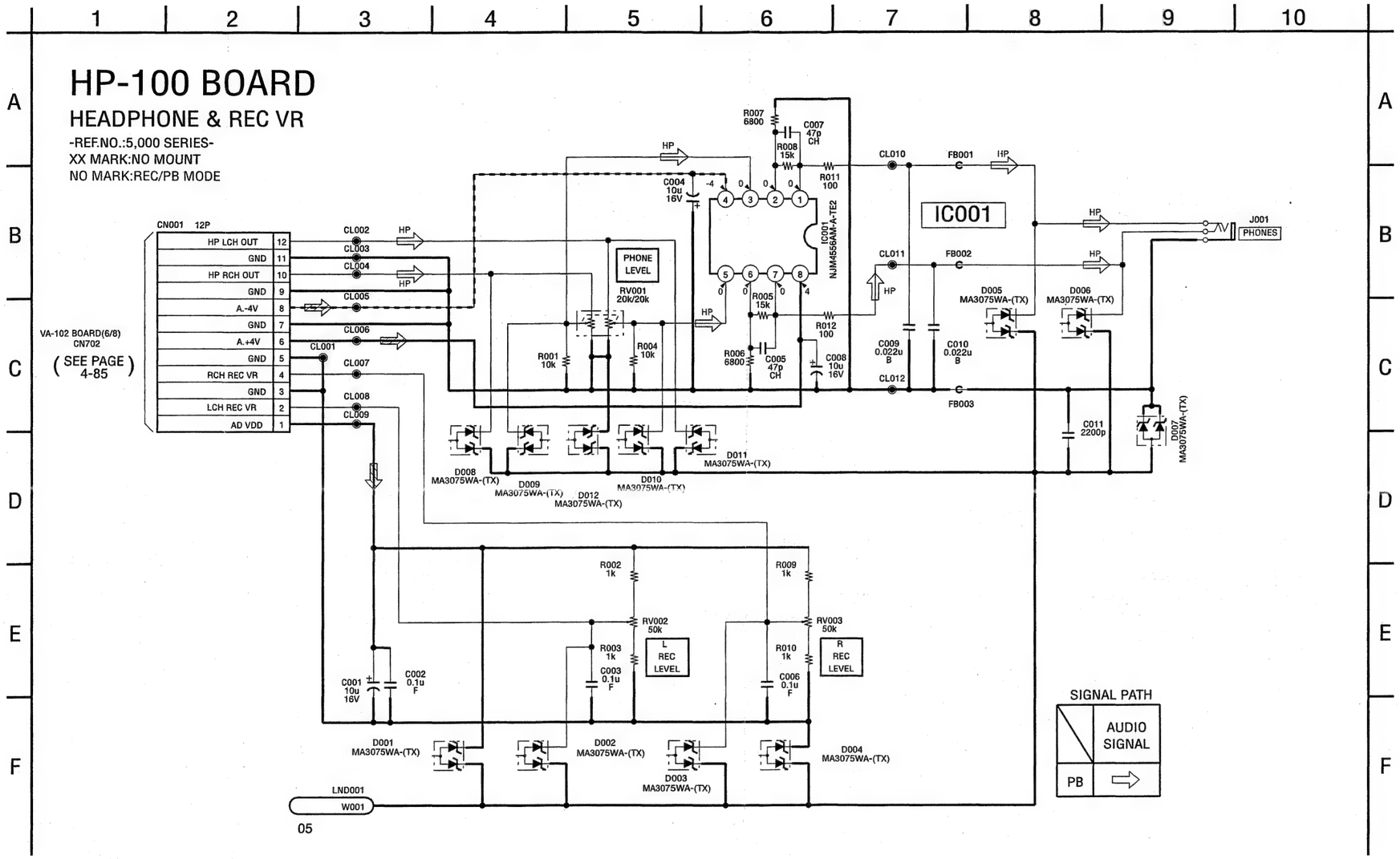




- **For Printed Wiring Board.**
- HP-100 board is six-layer print board. However, the patterns of layers 2 to 5 have not been included in the diagram.
- There are few cases that the part isn't mounted in this model is printed on this diagram.



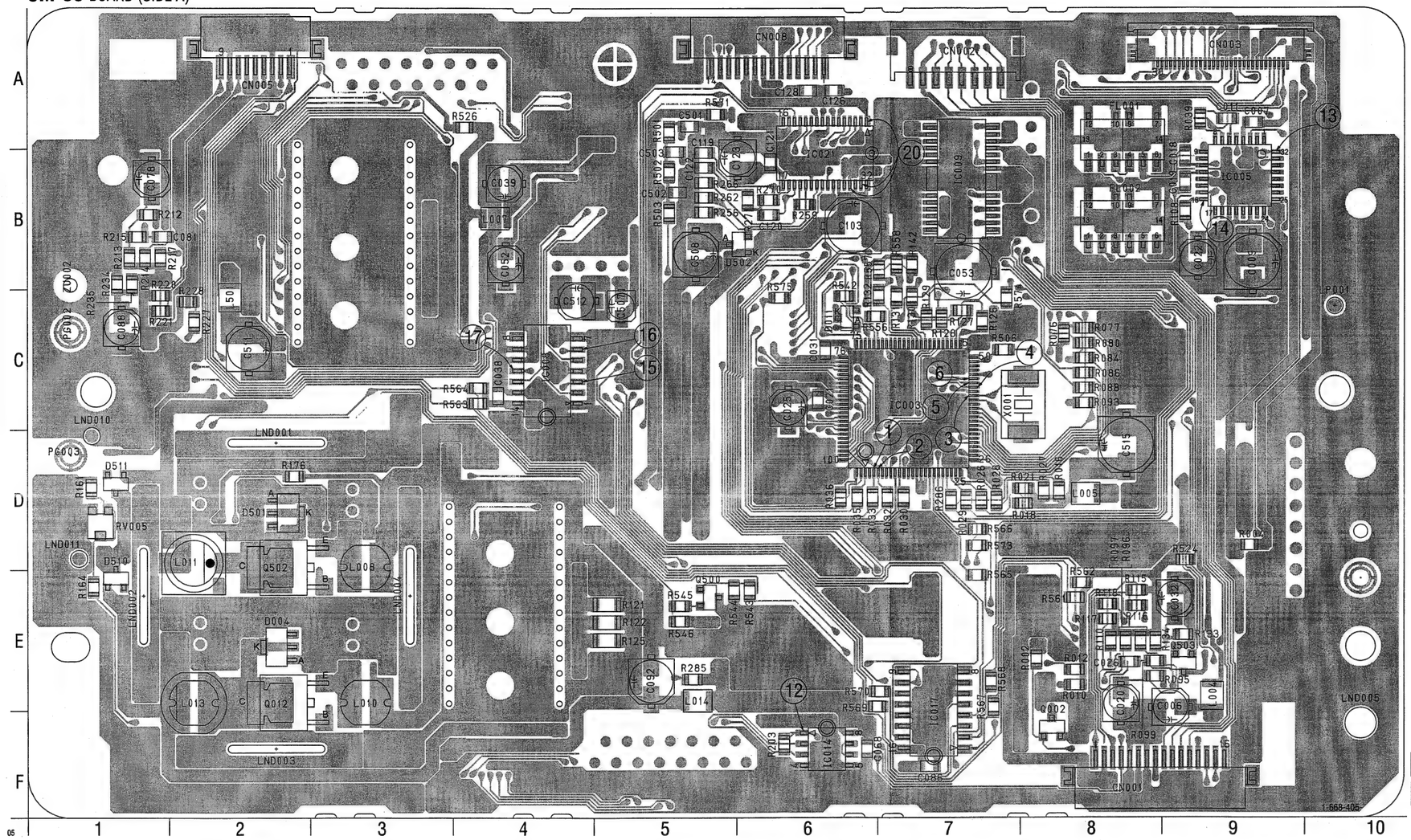
HP-100 (HEADPHONE & REC VR) SCHEMATIC DIAGRAM



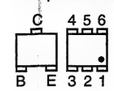
CM-56 (SERVO, SYSTEM CONTROL) PRINTED WIRING BOARD

– Ref. No.: CM-56 board; 4,000 series –

CM-56 BOARD (SIDE A)

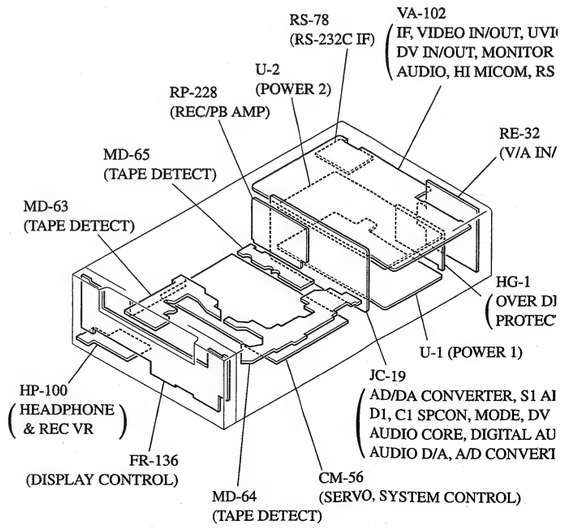


- **For Printed Wiring Board.**
- There are few cases that the part isn't mounted in this model is printed on this diagram.
- Chip transistor



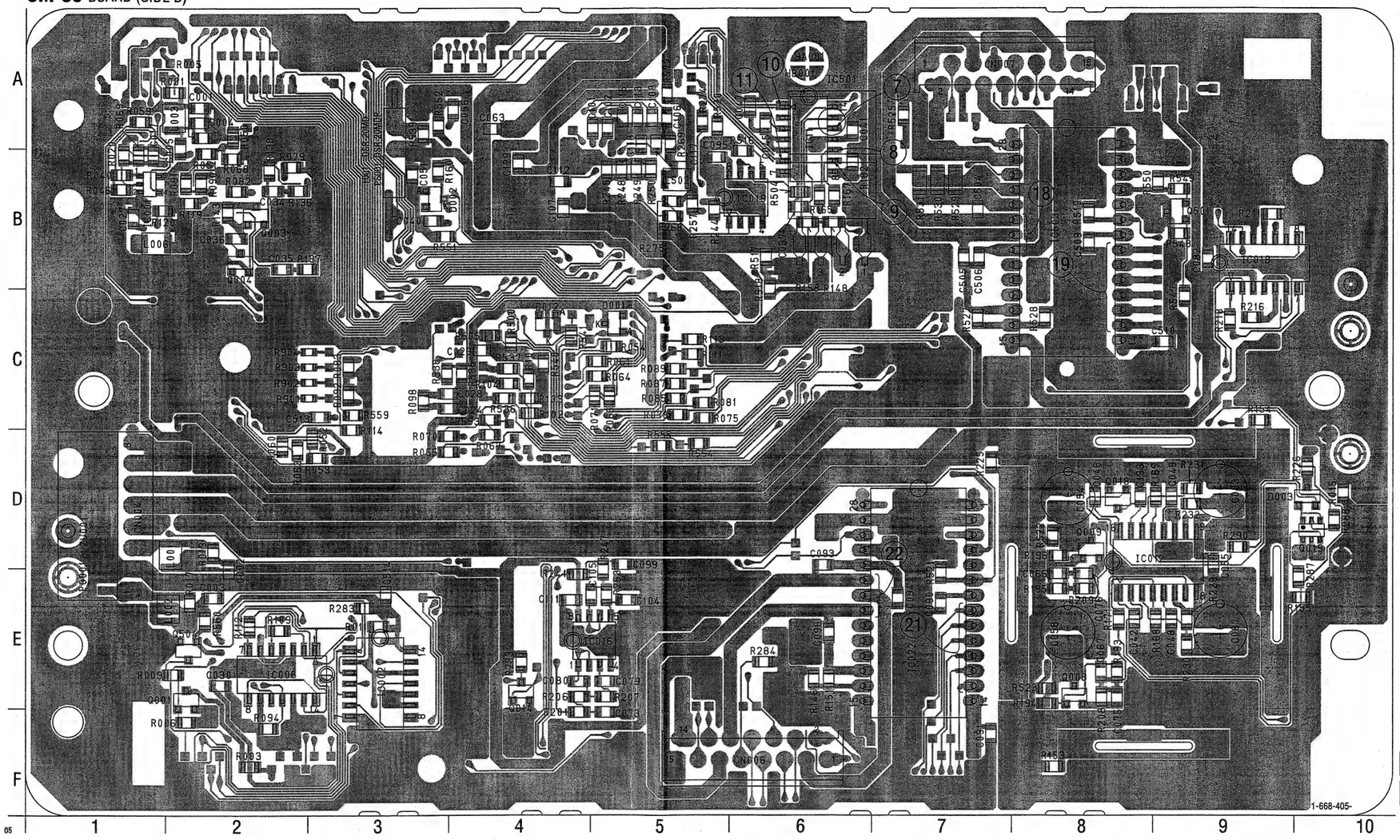
CM-56 BOARD (SIDE A)

CN001	F-8
CN002	A-7
CN003	A-9
CN005	A-2
CN008	A-6
D004	E-2
D011	C-6
D501	D-2
D502	B-5
IC003	C-7
IC005	B-9
IC008	C-4
IC009	B-7
IC014	F-6
IC017	F-7
IC021	A-6
Q002	F-8
Q012	E-2
Q500	E-5
Q502	D-2
Q503	E-9



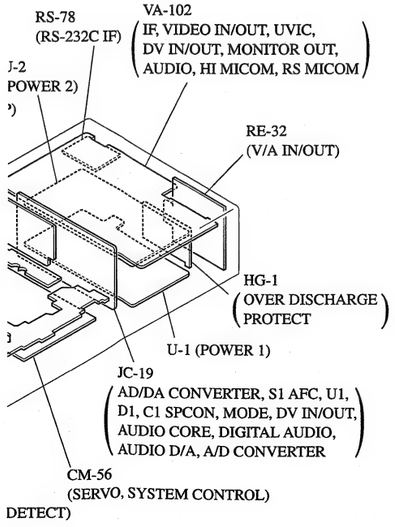
: mounted in this model is

CM-56 BOARD (SIDE B)



21 :DSR-20MDP

12 :DSR-20MD



CM-56 BOARD
(SIDE B)

CN004	D-1
CN006	F-5
CN007	A-7
D001	C-5
D002	B-3
D012	C-4
IC001	B-1
IC002	E-3
IC006	E-2
IC011	A-6
IC012	D-8
IC016	E-4
IC018	B-9
IC019	B-6
IC022	D-7
IC501	B-6
IC503	B-8
Q001	E-2
Q003	B-2
Q004	B-2
Q008	E-8
Q009	D-8
Q014	E-4
Q501	B-9
Q504	E-2

CM-56 (SERVO, SYSTEM CONTROL) SCHEMATIC DIAGRAM

CM-56 BOARD

SERVO,SYSTEM CONTROL
-REF.NO.:4,000 SERIES-
XX MARK:NO MOUNT

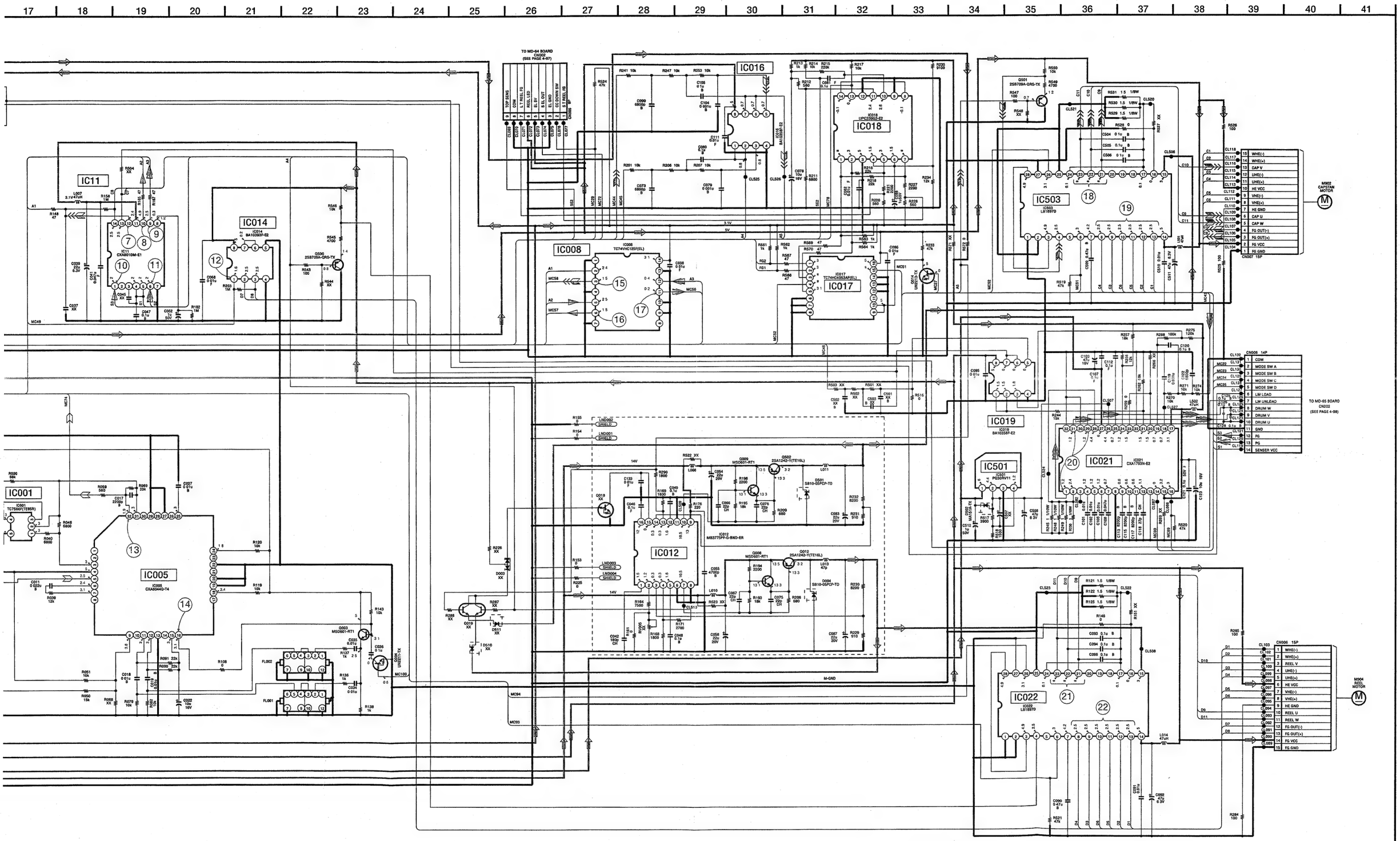
NO MARK:REC/PB MODE
R:REC MODE
P:PB MODE
*:IMPOSSIBLE TO MEASURE THE VOLTAGE AT THE MARKED POINTS.

IC002 TC74HC08AF(TEL)
IC006 UPC3392-E2
IC009 BA6219BFP-Y-E2
IC11 CXA0010M-E1
IC014 BA10393F-E2
IC003 CXP912002-073R-T6
IC001 TC7S66FT(TE85R)
IC005 CXA3004Q-T4

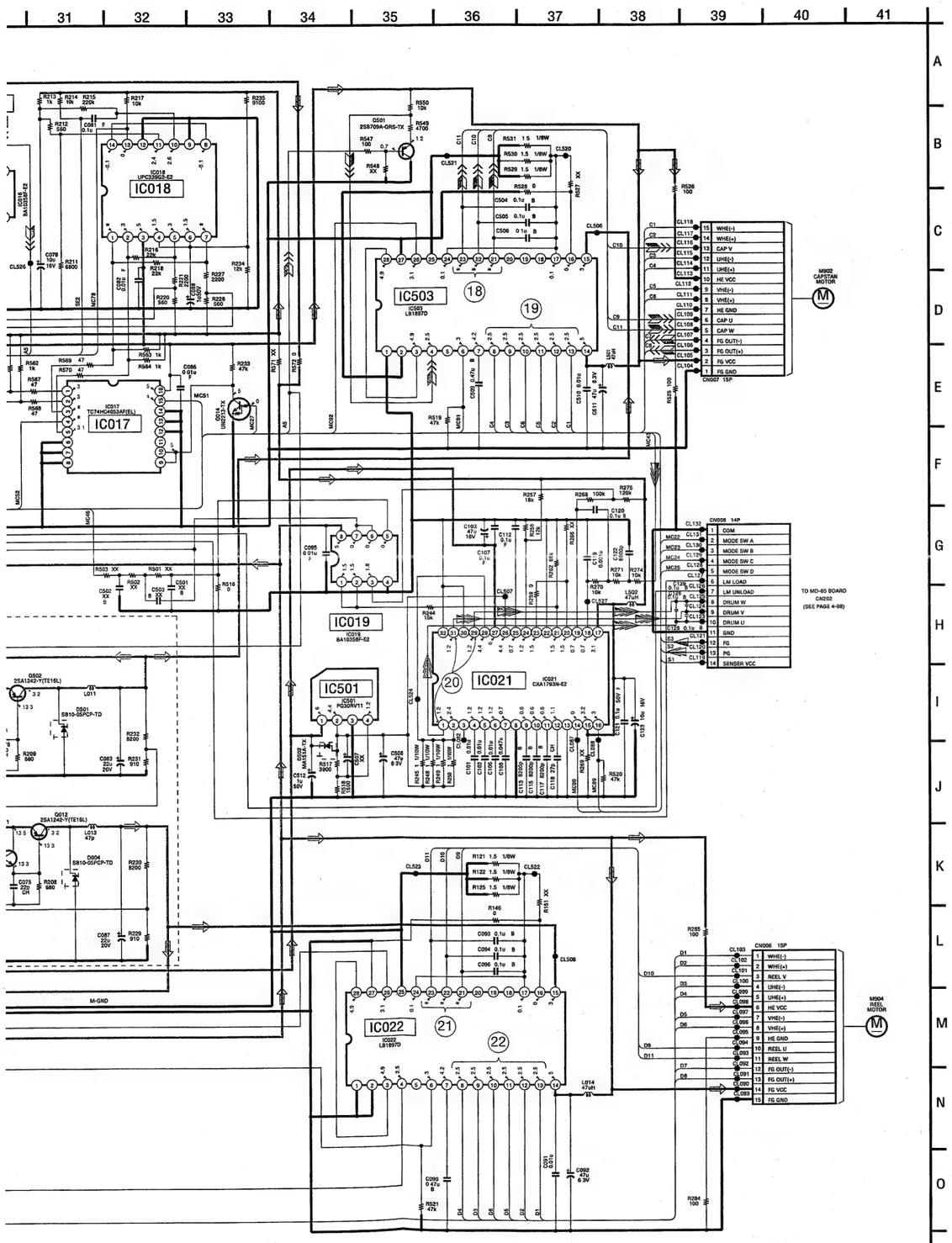
TO JC-19 BOARD(6/10) CN501 (SEE PAGE 4-42)
TO MD-63 BOARD CN101 (SEE PAGE 4-96)
TO RP-228 BOARD CN103 (SEE PAGE 4-9)
TO U-2 BOARD CN10 (SEE PAGE 4-126)

SIGNAL PATH

	REC	REC/PB	PB
Drum speed servo		▷	
Drum phase servo		▷▷	
Drum servo(speed and phase)		▷▷▷	
Capstan speed servo			
Capstan phase servo			
Capstan servo(speed and phase)		▷▷▷	
Ref.signal			▷



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.



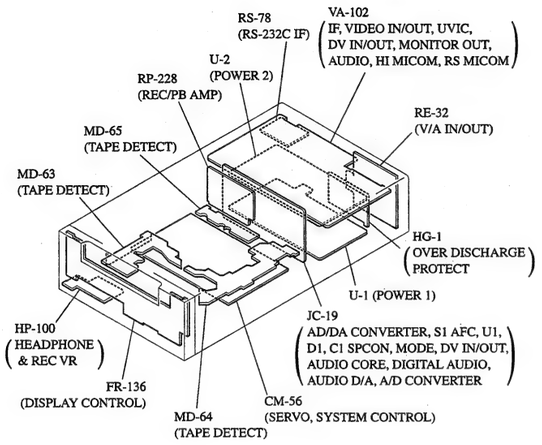
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

CM-56 BOARD

❶ 3.0 Vp-p, 6.6 msec IC003 ⑤ REC/PB	❾ 4.8 Vp-p, 6.6 msec IC011 ⑨ REC/PB	⓱ 3.0 Vp-p, 6.6 msec IC008 ⑪ REC/PB
❷ 3.1 Vp-p, 3.3 msec IC003 ⑥ REC/PB	❿ 0.28 Vp-p, 1.1 msec IC011 ① REC/PB	⓲ 0.5 Vp-p, 100 msec IC503 ㉑ – ㉓ REC/PB
❸ 1.9 Vp-p, 20 MHz IC003 ㊶ REC/PB	⓫ 30 mVp-p, 6.6 msec IC011 ⑥ REC/PB	⓳ 0.1 Vp-p, 100 msec IC503 ⑧ – ⑬ REC/PB
❹ 3.0 Vp-p, 26 µsec IC003 ㊸ REC/PB	⓬ 3.0 Vp-p, 2.56 msec IC014 ① REC/PB	⓴ 2.5 Vp-p, 1.1 msec IC021 ①, ㉙, ㉛ REC/PB
❺ 3.0 Vp-p, 26 µsec IC003 ㊹ REC/PB	⓭ 1.6 Vp-p, 13.2 msec IC005 ㉜ PB	㉑ 0.1 Vp-p, 390 msec IC022 ⑧ – ⑬ REC/PB
❻ 3.0 Vp-p, 26 µsec IC003 ㊺ REC/PB	⓮ 0.5 Vp-p, 6.6 msec IC005 ⑯ PB	㉒ 1.3 Vp-p, 390 msec IC022 ㉑ – ㉓ REC/PB
❼ 5.0 Vp-p, 0.76 msec IC011 ⑫ REC/PB	⓯ 3.6 Vp-p, 0.76 msec IC008 ③ REC/PB	
❽ 5.0 Vp-p, 1.1 msec IC011 ⑩ REC/PB	⓰ 3.6 Vp-p, 1.1 msec IC008 ⑥ REC/PB	

FR-136 (DISPLAY CONTROL) PRINTED WIRING BOARD

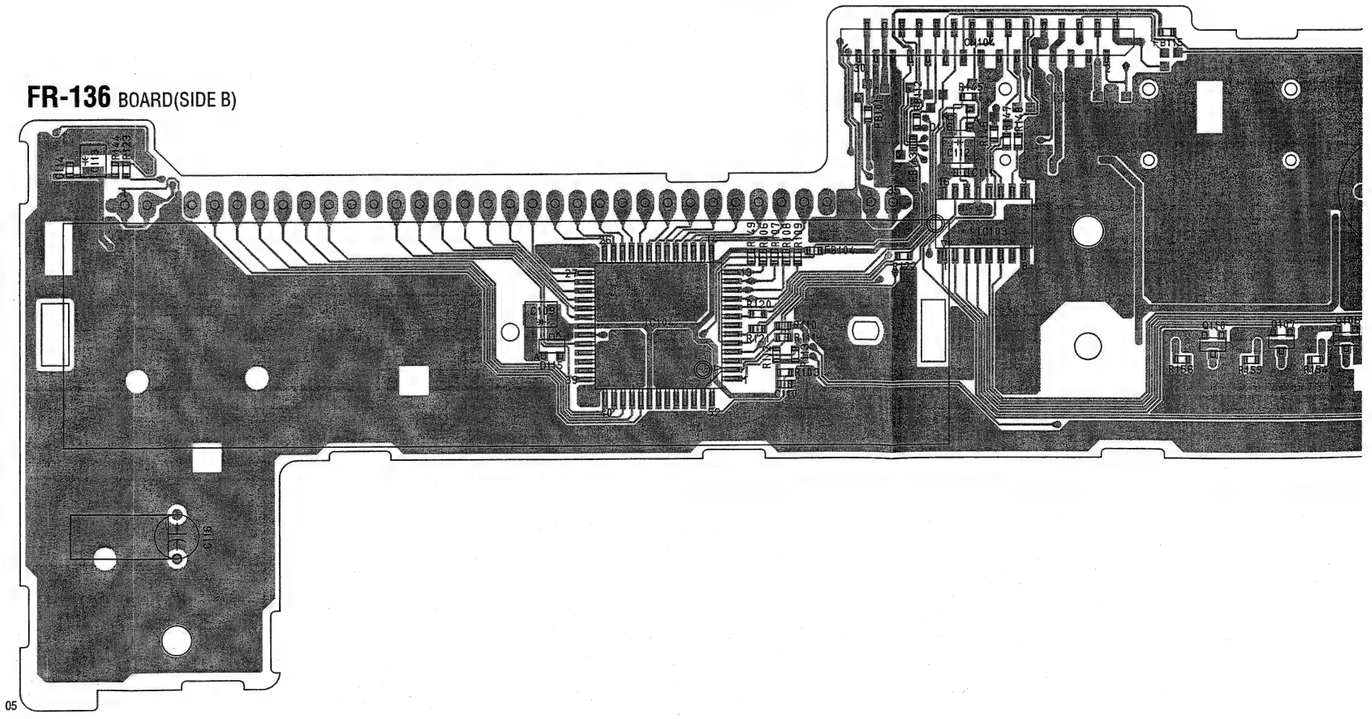
– Ref. No.: FR-136 board; 5,000 series –



- **For Printed Wiring Board.**
- There are few cases that the part isn't mounted in this model is printed on this diagram.
- Chip transistor

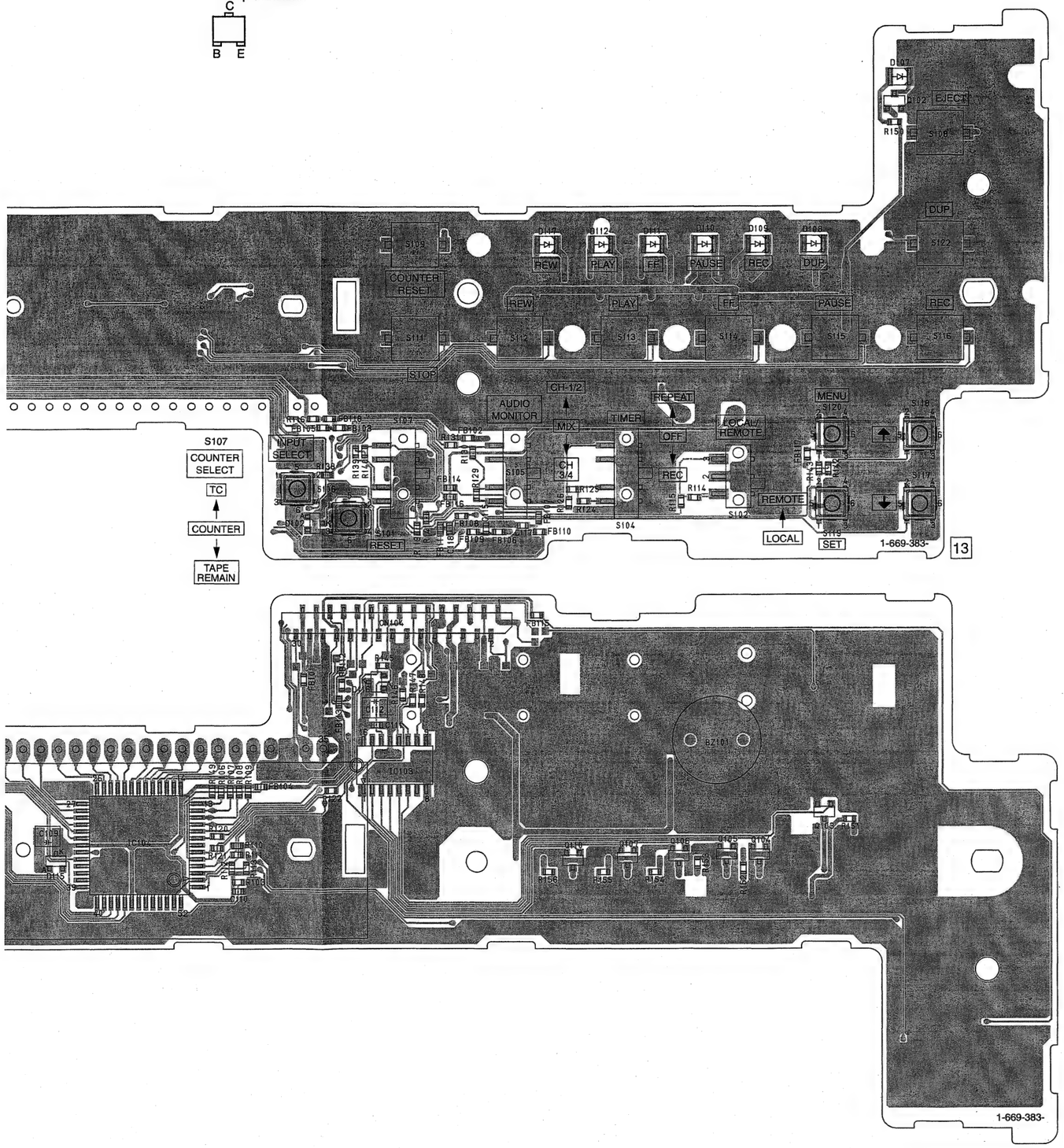
FR-136 BOARD(SIDE A)

FR-136 BOARD(SIDE B)

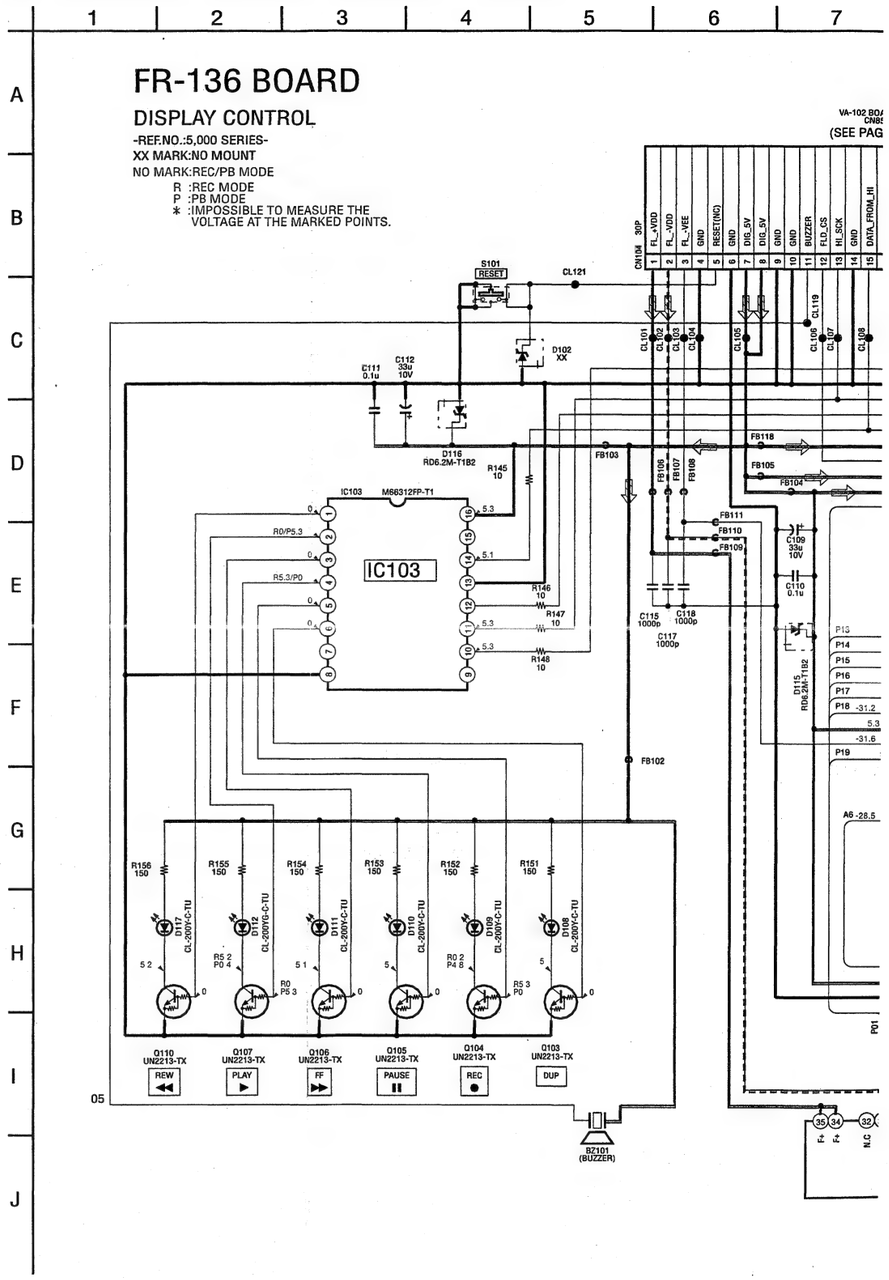


- **For Printed Wiring Board.**
- There are few cases that the part isn't mounted in this model is printed on this diagram.
- Chip transistor

C
B E



FR-136 (DISPLAY CONTROL) SCHEMATIC DIAGRAM

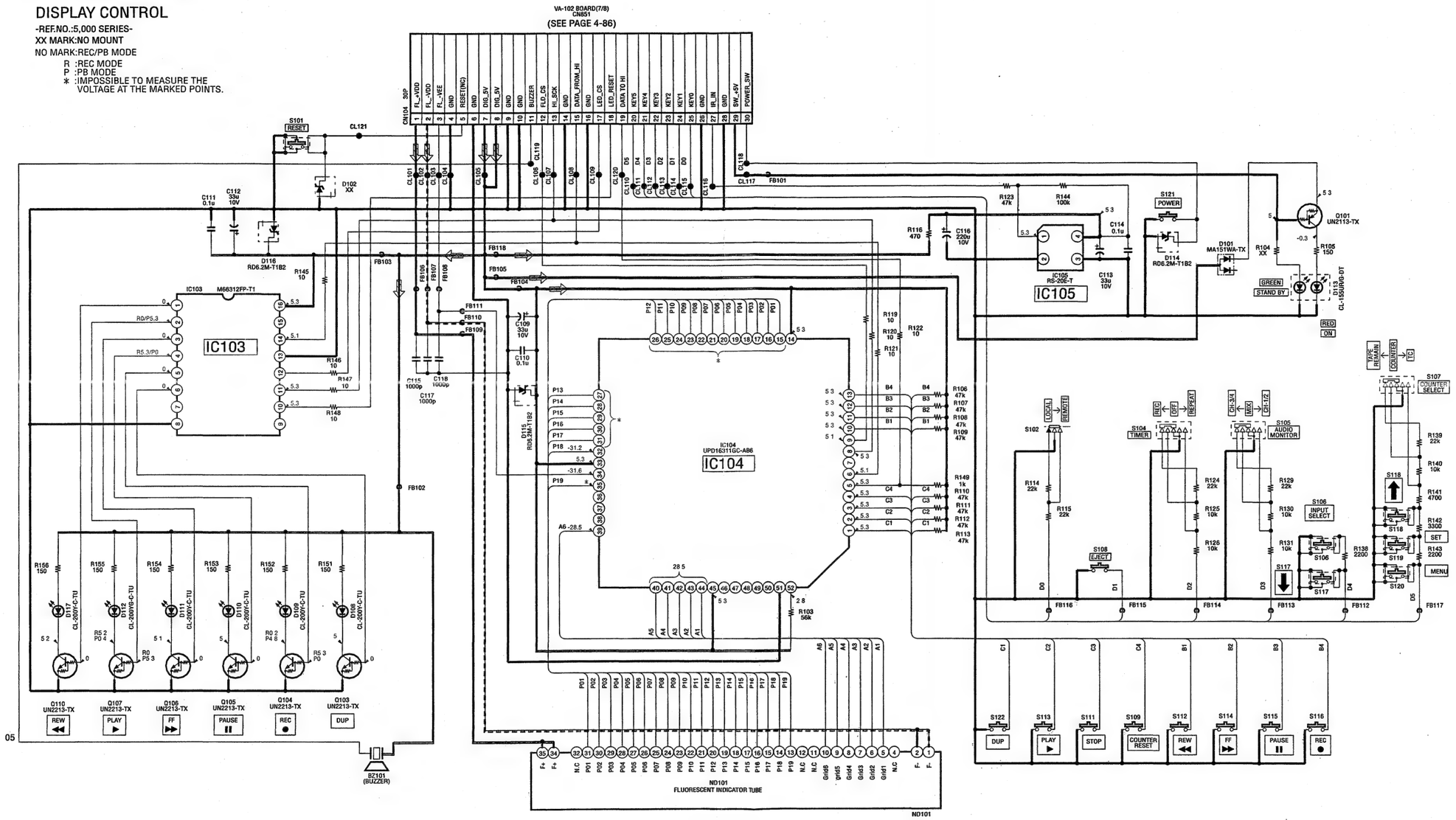


FR-136 (DISPLAY CONTROL) SCHEMATIC DIAGRAM

FR-136 BOARD

DISPLAY CONTROL

-REF.NO.:5,000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
* :IMPOSSIBLE TO MEASURE THE VOLTAGE AT THE MARKED POINTS.

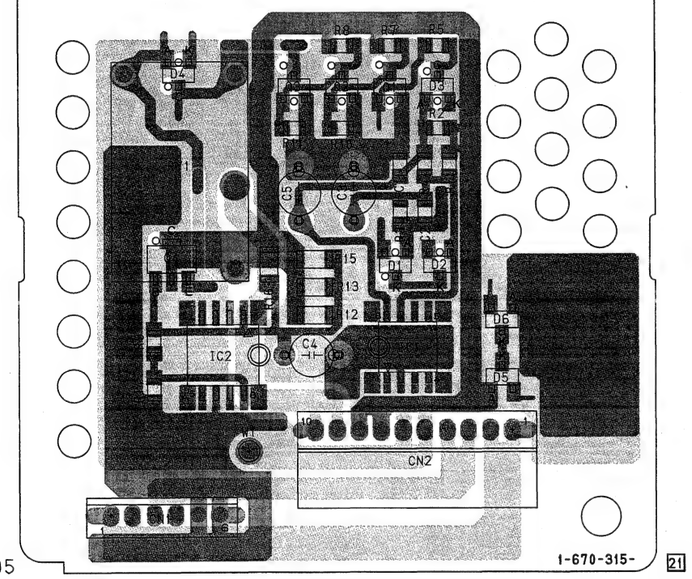


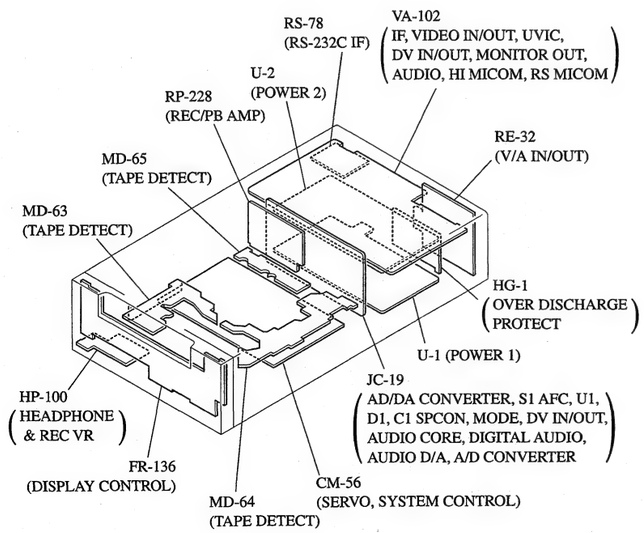
HG-1 (OVER DISCHARGE PROTECT) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

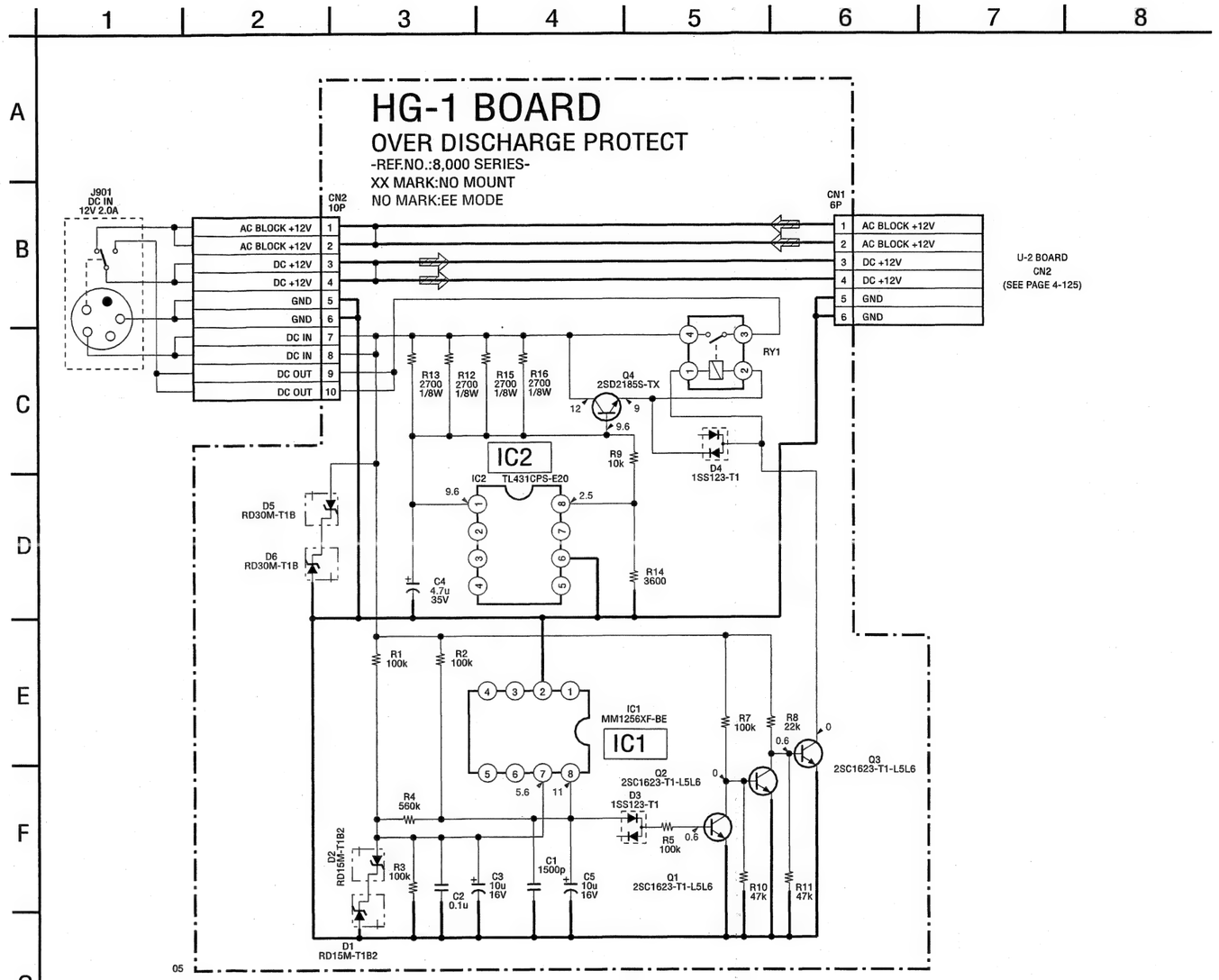
– Ref. No.: HG-1 board; 8,000 series –

- **For Printed Wiring Board.**
- ▒▒▒ : Pattern from the side which enables seeing.
- ▒▒▒ : Pattern on the rear side.
- There are few cases that the part isn't mounted in this model is printed on this diagram.

HG-1 BOARD







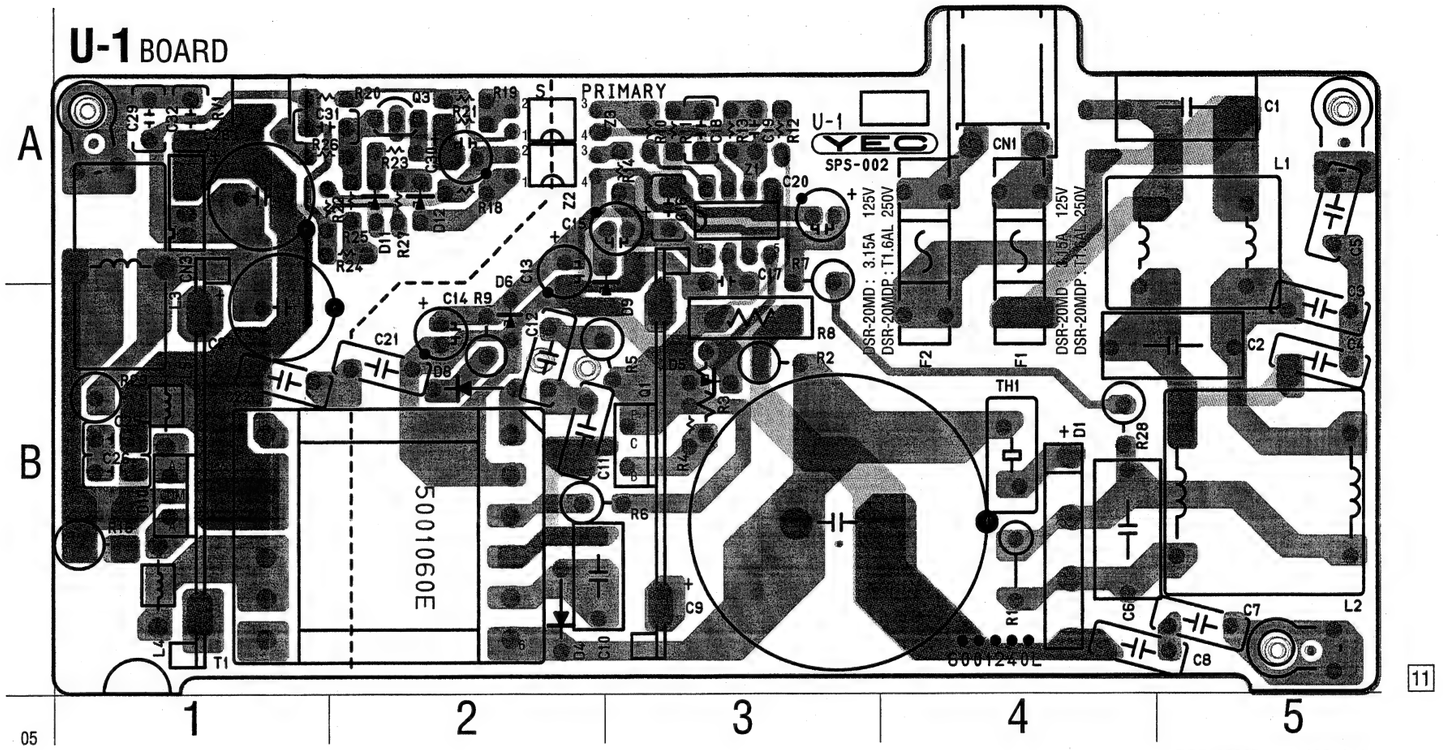
U-1 (POWER 1) PRINTED WIRING BOARD

– Ref. No.: U-1 board; 10,000 series –

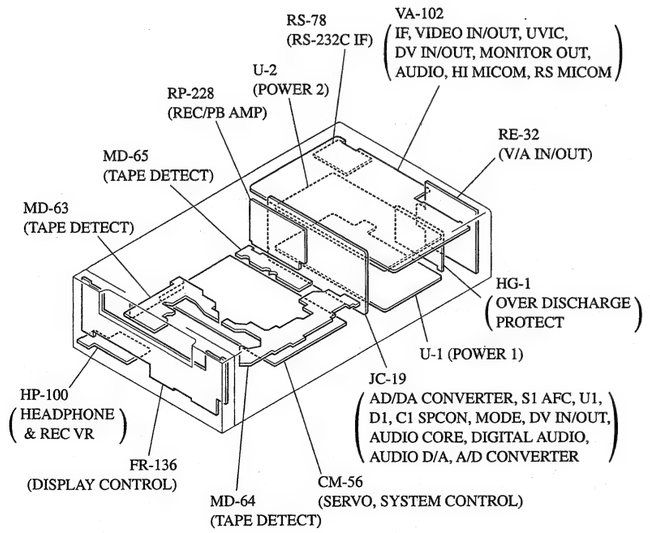
- **For Printed Wiring Board.**
- ▒▒▒ : Pattern from the side which enables seeing.
- ▒▒▒ : Pattern on the rear side.
- There are few cases that the part isn't mounted in this model is printed on this diagram.

U-1 BOARD

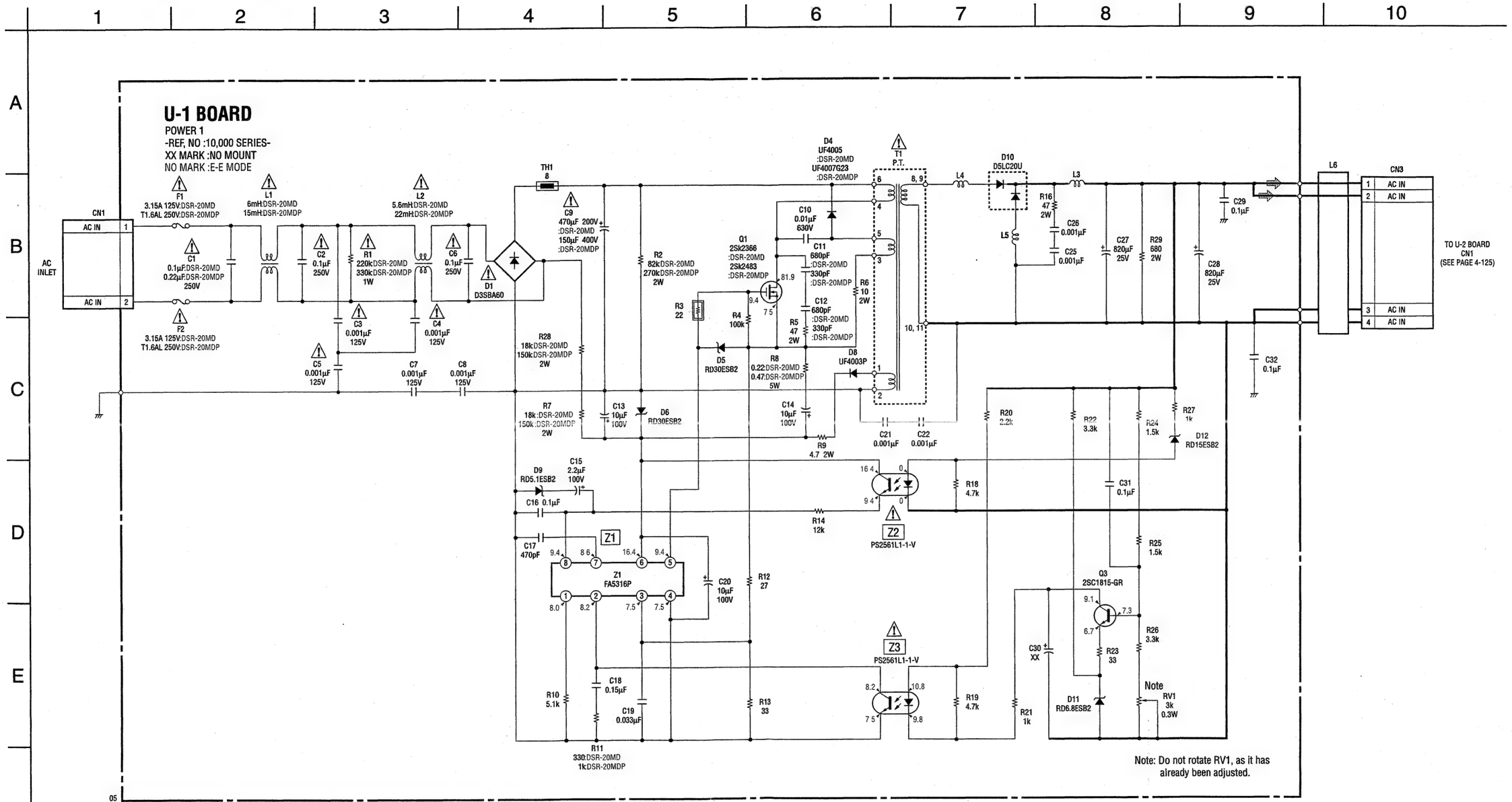
CN1	A-4
CN3	A-1
D1	B-4
D4	B-2
D5	B-3
D6	B-2
D8	B-2
D9	B-3
D10	B-1
D11	A-2
D12	A-2
Q1	B-3
Q3	A-2
Z1	A-3
Z2	A-2
Z3	A-2



DSR-20MD : 1-468-441-
DSR-20MDP : 1-468-442-



U-1 (POWER 1) SCHEMATIC DIAGRAM



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

U-2 (POWER 2) PRINTED WIRING BOARD

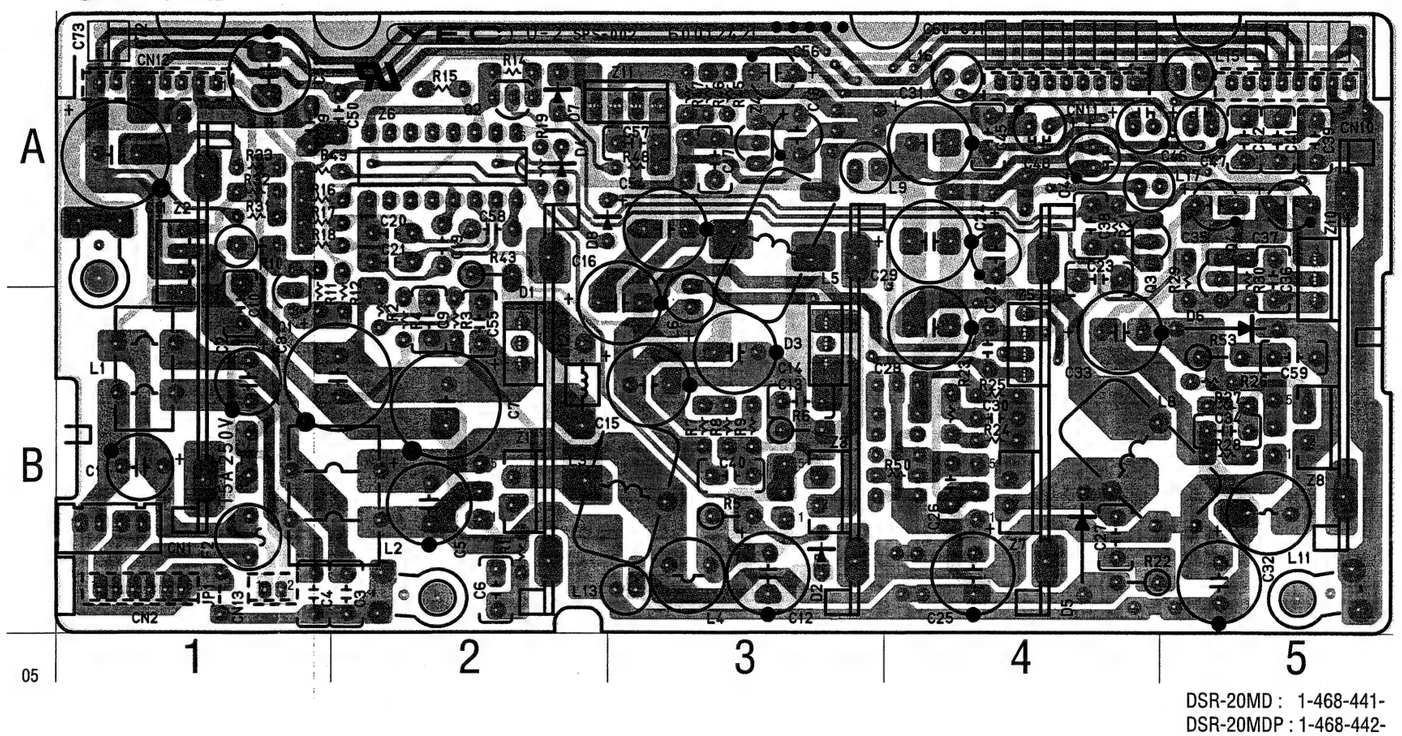
– Ref. No.: U-2 board; 20,000 series –

- **For Printed Wiring Board.**
- ▒▒▒ : Pattern from the side which enables seeing.
- ▒▒▒ : Pattern on the rear side.
- There are few cases that the part isn't mounted in this model is printed on this diagram.

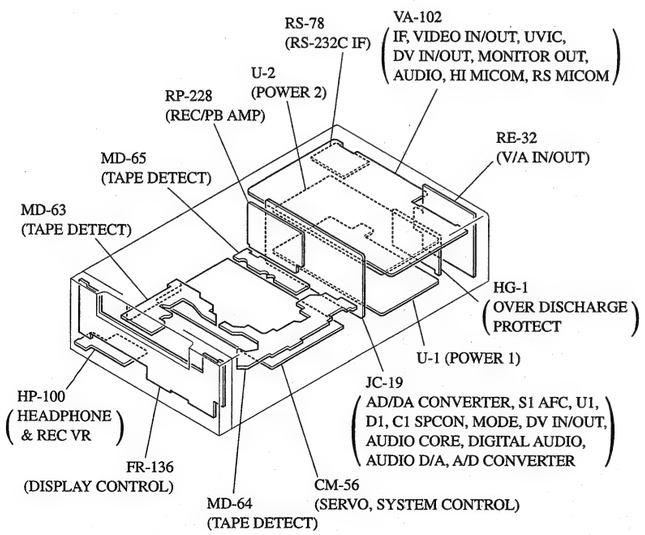
U-2 BOARD

CN1	B-1
CN2	B-1
CN10	A-5
CN11	A-4
CN12	A-1
CN13	B-1
D1	B-2
D2	B-3
D3	B-3
D4	A-2
D5	B-4
D6	B-5
D7	A-2
D8	A-3
Q1	B-1
Q2	A-2
Q3	A-4
Q4	A-5
Z1	B-2
Z2	A-1
Z3	B-3
Z4	A-3
Z5	B-4
Z6	A-2
Z7	B-4
Z8	B-5
Z10	A-5
Z11	A-3

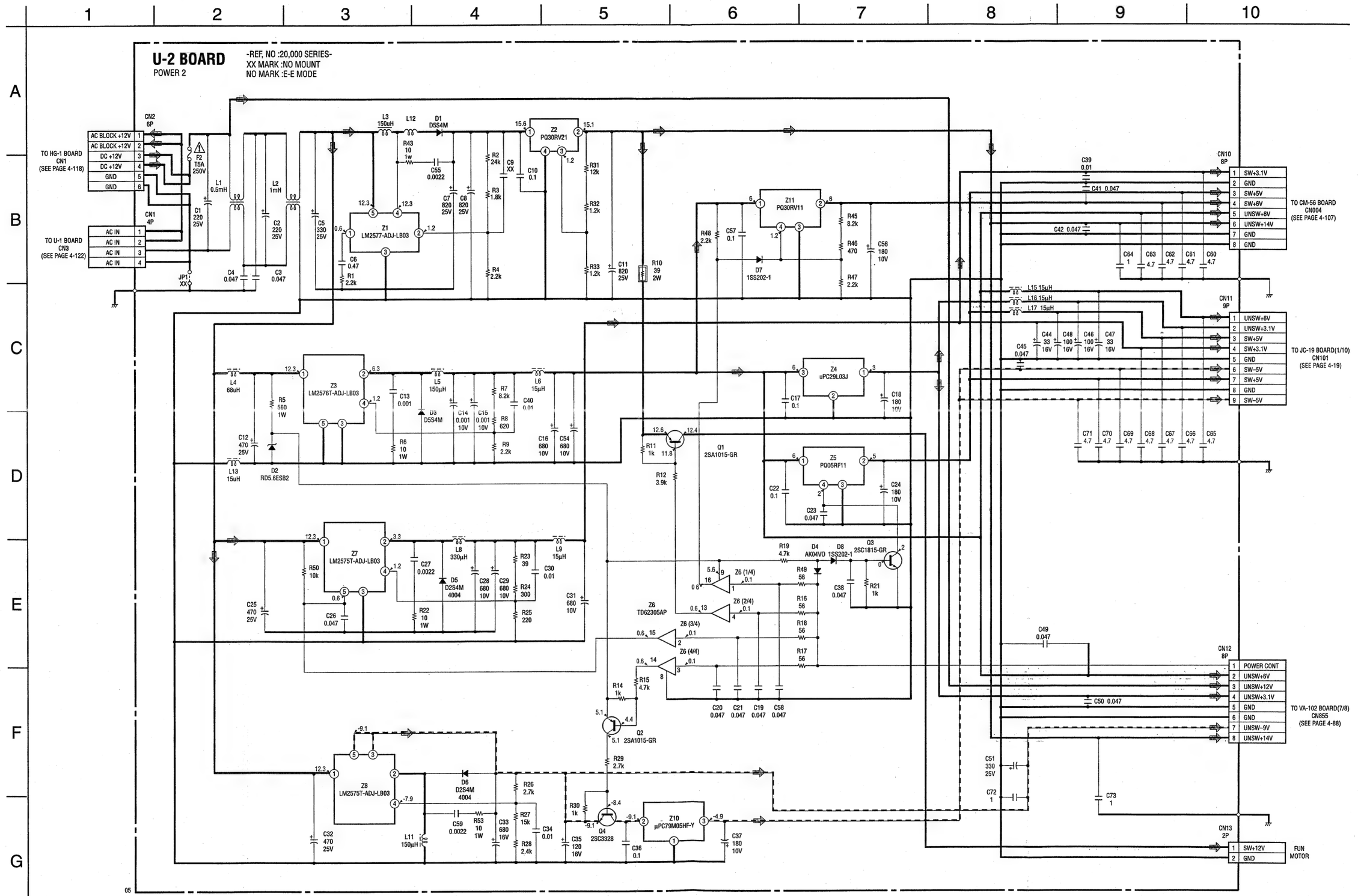
U-2 BOARD



DSR-20MD : 1-468-441-
DSR-20MDP : 1-468-442-



U-2 (POWER 2) SCHEMATIC DIAGRAM



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

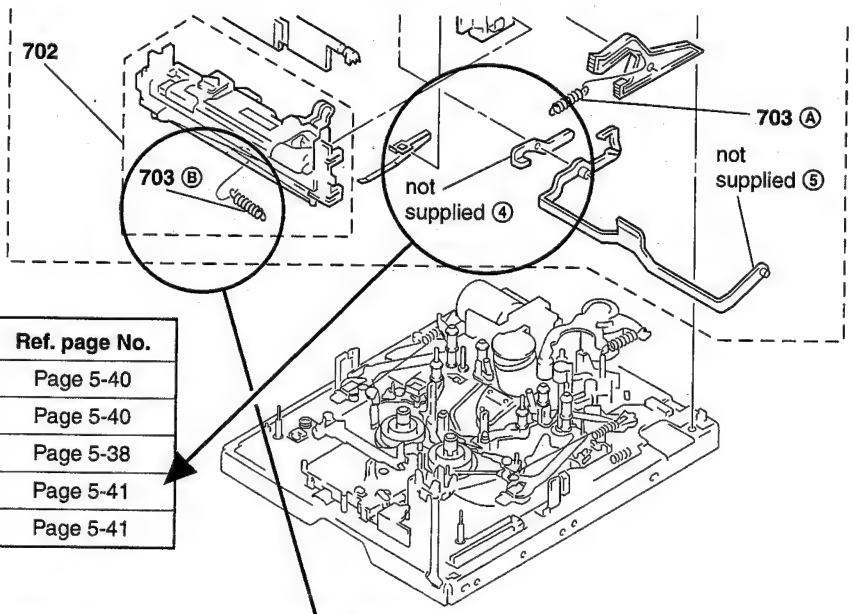
SECTION 5
ADJUSTMENTS

5-1. MECHANICAL SECTION ADJUSTMENTS

5-1-1. INFORMATION

1-1. HOW TO SEARCH REFERENCE PAGES FOR REMOVAL

- To facilitate finding the required pages on how to removing and attaching parts, reference pages are listed in the remarks of the exploded views (6-4 to 6-9 pages) in the 5-1. Mechanical Section Adjustment.



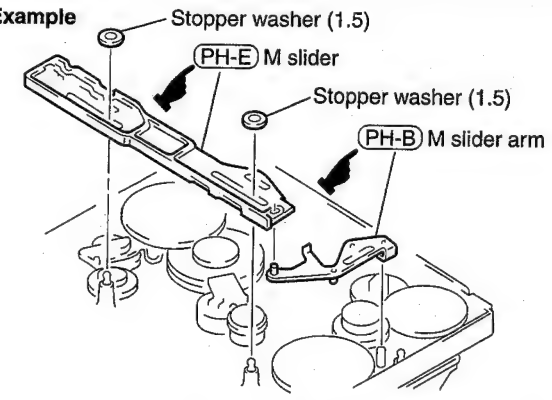
not supplied	Ref. page No.
①	Page 5-40
②	Page 5-40
③	Page 5-38
④	Page 5-41
⑤	Page 5-41

Ref. No.	Part No.	Description	Ref. Page No.	Ref. No.
* 701	A-7092-644-A	FL BLOCK ASSY	(5-2)	708
702	A-7092-647-A	SLOAT BLOCK ASSY, C	(5-41)	709
703	3-967-604-01	SPRING (DB), TENSION	(Ⓐ:5-40/Ⓑ:5-41)	710
704	3-967-655-01	DOOR, C	(5-40)	
705	3-967-613-01	SPRING (HS), TENSION COIL	(5-41)	711
				712

1-2. PHASE ADJUSTMENT MARK "(PH-)"

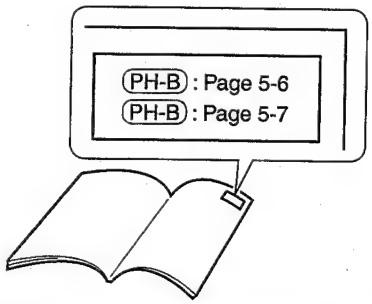
Numerous phase adjustments must be performed for removing and attaching parts (replacing parts) of the E mechanism. When removing and attaching parts, be sure to check the phase adjustment of corresponding parts. Parts that need phase adjustment are indicated with (PH-) mark. When replacing parts indicated with (PH-) mark, check their positions and phases so that the parts are attached smoothly in later.

Example



In case of the above figure, refer to Ⓑ and Ⓔ of "5-1-3. PHASE ADJUSTMENTS"

Example



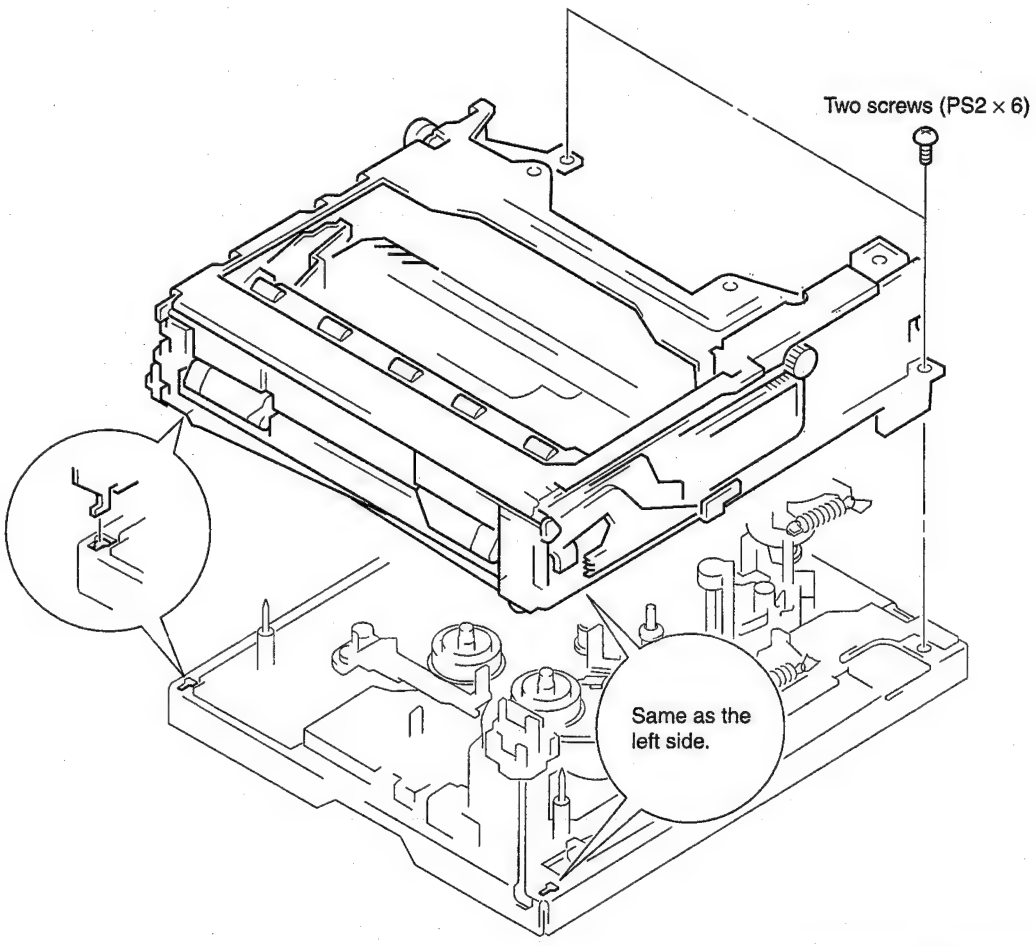
The reference pages of phase adjustment are appeared on the top of the right in each page.

5-1-2. PREPARATION FOR MECHANICAL CHECK, ADJUSTMENT AND MAINTENANCE

2-1. FL BLOCK ASSEMBLY

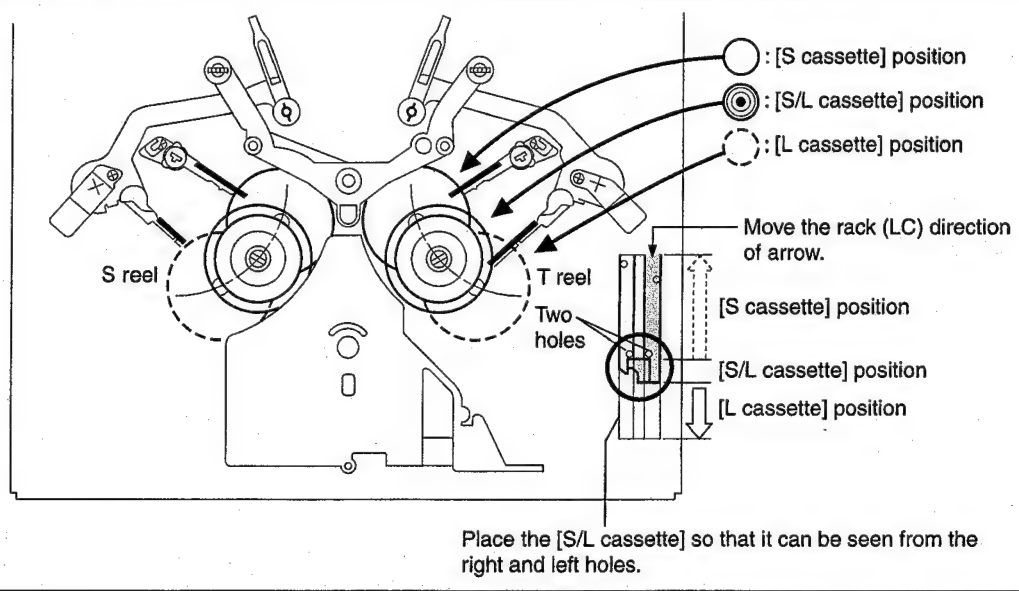
- **Removing/Attaching**

- For removal of mcechanism deck, refer to 2-5. Removal of MD BLOCK ASSEMBLY.



Fixing torque: 0.2942 N•m (3.0 kg•cm)

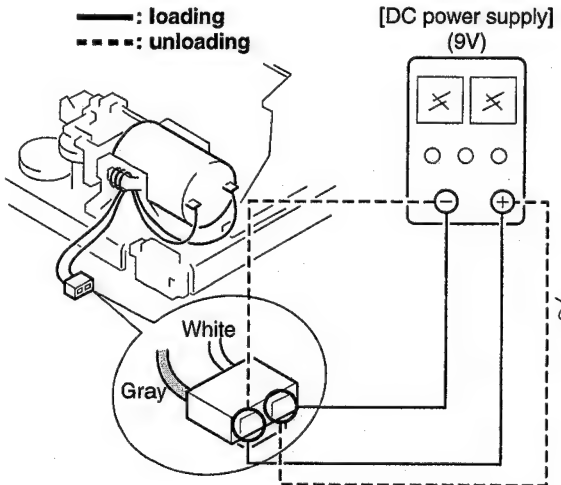
2-2. CASSETTE POSITIONS



2-3. LOADING/UNLOADING

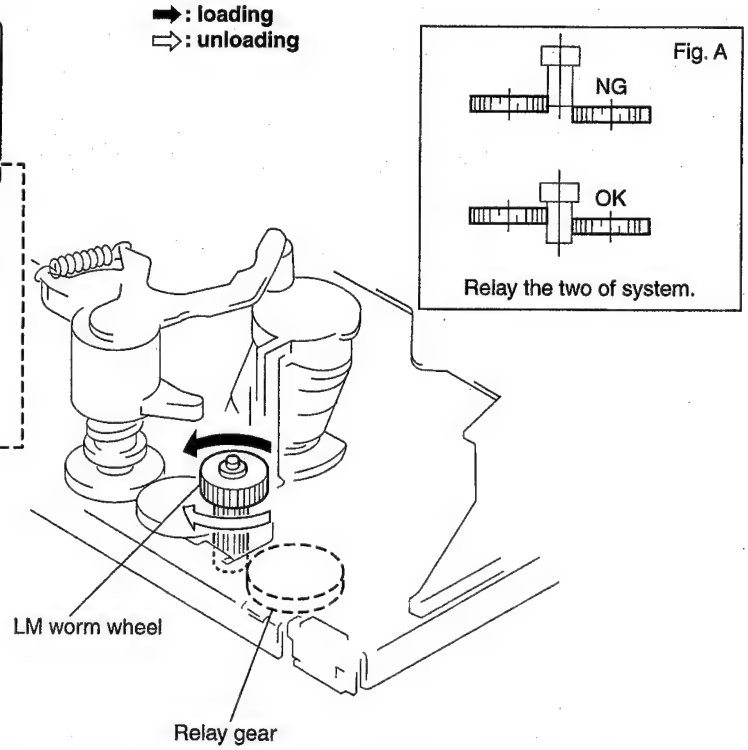
[Using the DC power supply] : With a loading motor

Note: Be sure to disconnect the connector of the loading motor before servicing.



[Manual] : Without a loading motor

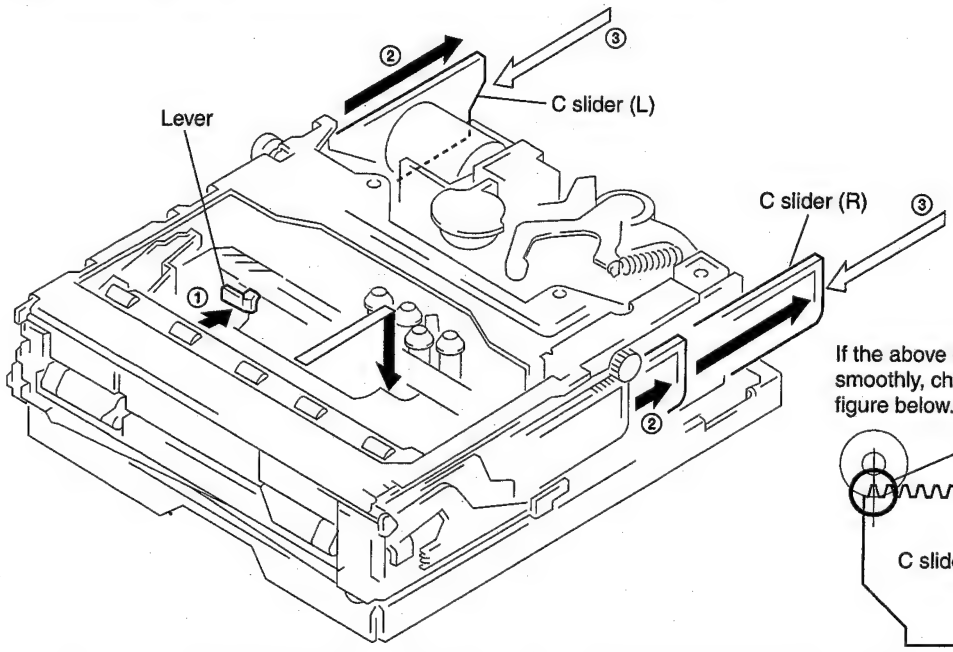
Note: If the LM worm wheel is rotated in the state shown in figure A (not engaged with the relay gear), the phases of the pinch drive system and the loading drive system will shift. (Refer to phase adjustment Ⓖ on page 5-7 for details of phase adjustment)



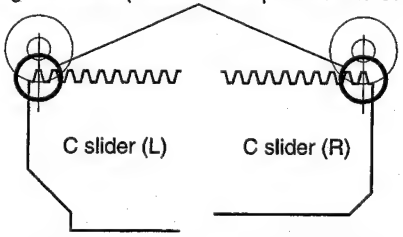
2-4. MANUAL UP/DOWN THE FL BLOCK

➡ **DOWN.** (While pushing the lever in the arrow ① direction, push C slider (L) and (R) simultaneously in the arrow ③ direction)

⇨ **UP.** (Push C slider (L) and (R) simultaneously in the arrow ③ direction)



If the above operation cannot be performed smoothly, check the phase as shown in the figure below. (Cassette compartment is UP)



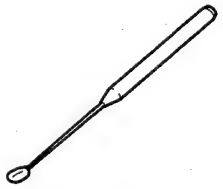
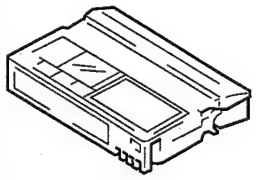
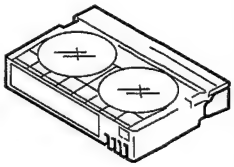
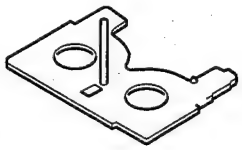
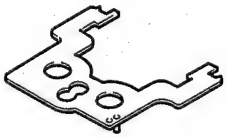
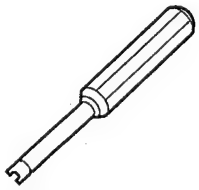
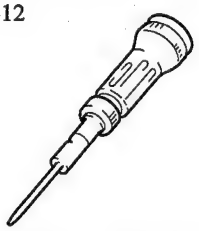
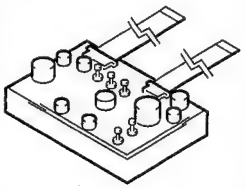
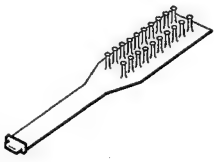
2-5. SERVICE JIGS LIST

Ref. No.	Name	Part No.	Fixtur No.	Usage, Others Application, etc
J-1	Cleaning fluid	Y-2031-001-0		For cleaning drum assembly and tape guide
J-2	Wiping cloth	7-741-900-53		For cleaning drum assembly
J-3	Super fine applicator (Made by NIPPON APPLICATOR (P752D))			For cleaning tape guide
J-4	Mirror (Small oval type)	J-6080-840-A	GD-2038	Tape path
J-5	Tracking tape (XH2-1AST) Standard cassette Tracking tape (XH2-1ASE) Standard cassette Tracking tape (XH2-1A1) Mini cassette	8-967-999-01 8-967-999-06 8-967-999-03		Tape path (for tape top checking) Tape path (for tape end checking) Tape path (for checking)
J-6	Mini DV torque cassette	J-6082-360-A		For adjusting FWD/RVS back tension
J-7	Cassette standard plate (D/E mechanism)	J-6082-330-A		For adjusting tape guide and reel table
J-8	Reel standard plate (D/E mechanism)	J-6082-331-A		For adjusting reel table
J-9	TG2/7 preset plate	J-6082-358-A		For adjusting tape guide
J-10	Screwdriver for tape path	J-6082-026-A		For adjusting tape guide
J-11	Adjusting remote commander (RM-95 remodeled partly) Note 1	J-6082-053-B		Tape path
J-12	Torque driver	J-9049-330-A		Mechanism check and replacement
J-13	Tension regulator adjustment board	J-6082-359-A		Electric tension regulator adjustment
J-14	CPC 8-jig	J-6082-388-A		Tape path

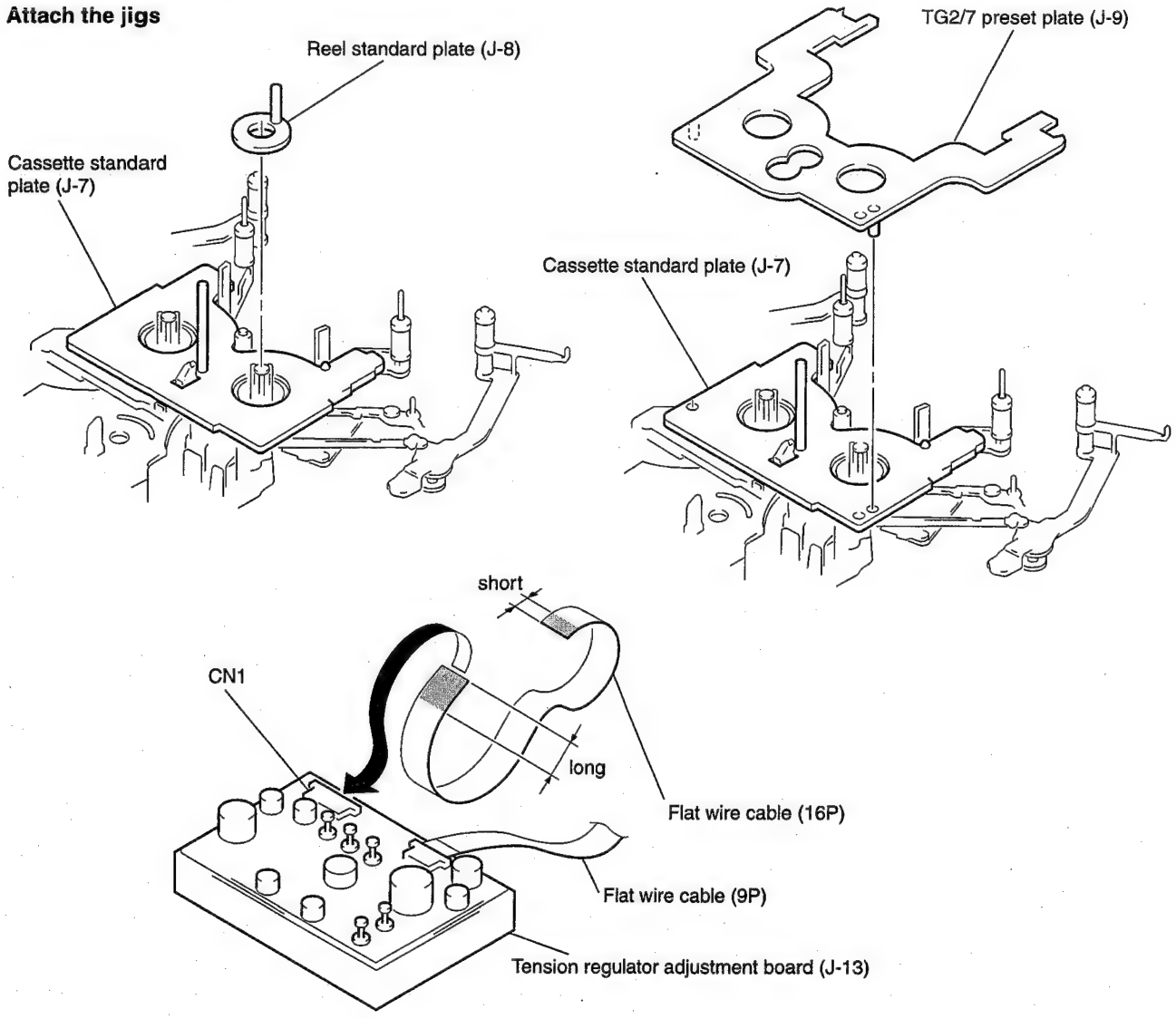
Other equipment used
- Oscilloscope
- DC power supply
- Digital voltage meter

Note 1: If the micro processor IC in the adjusting remote commander is not the new micro processor (UPD7503G-C56-12), the pages cannot be switched.
In this case, replace with the new micro processor (8-759-148-35).

Tape path:
1. Make a checking and adjustment at the tape top using the XH1-1AST tape.
2. Then, make a checking with the XH2-1ASE (for tape end) and XH2-1A1 (Mini cassette for tape top and end).
3. Again make a checking with the XH2-1AST.

J-1 	J-2 	J-3 	J-4 	J-5 
J-6 	J-7 	J-8 	J-9 	J-10 
J-11 	J-12 	J-13 	J-14 	

- **Attach the jigs**

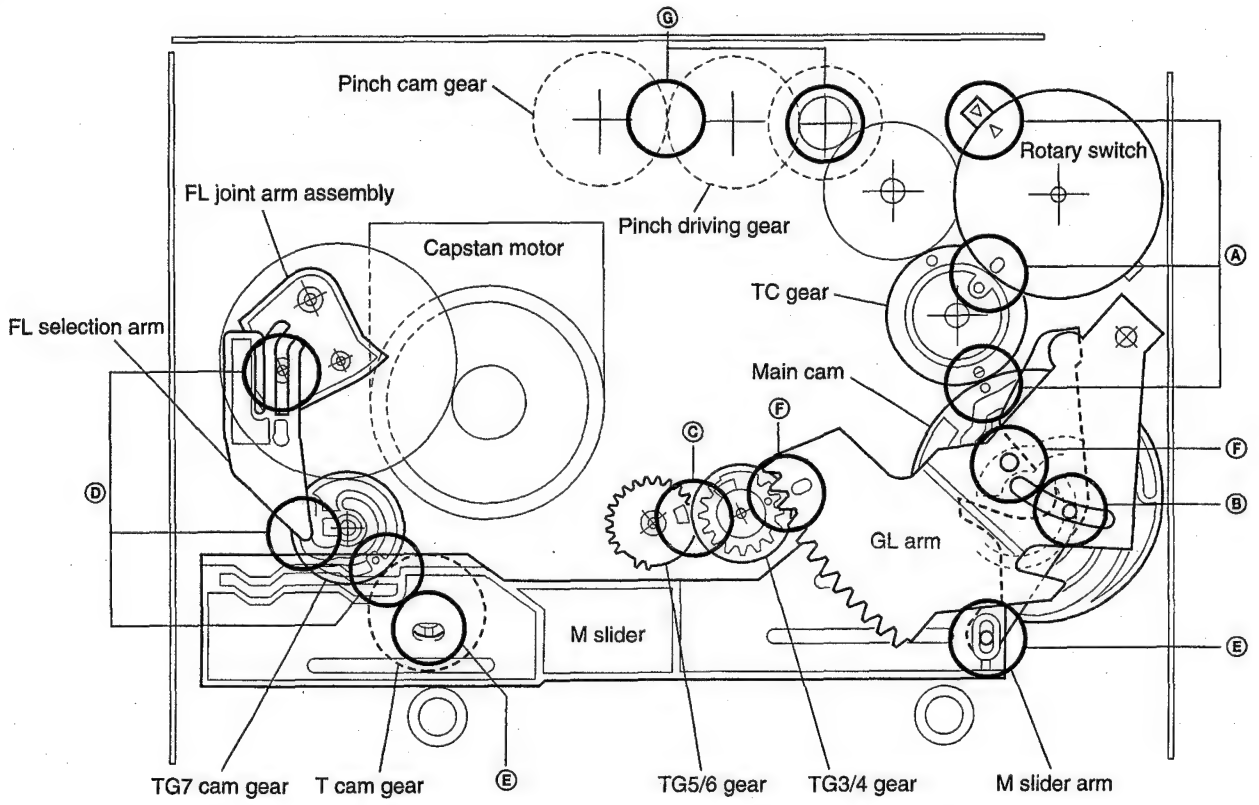


5-1-3. PHASE ADJUSTMENTS

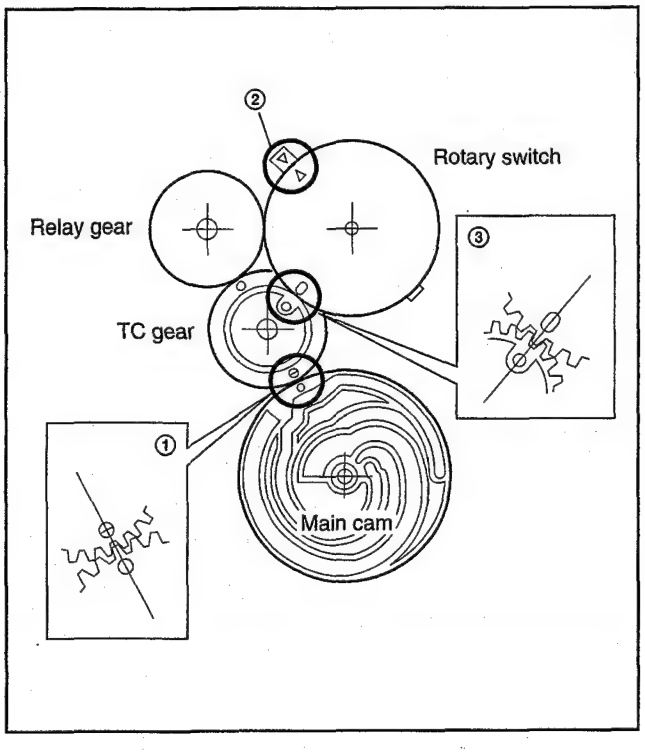
- This section classifies the phase adjustment into three blocks for clarity. The attaching order of each part is not described here. For details of the attaching order, refer to "**5-1-5. MECHANISM SECTION CHECKS AND REPLACEMENTS**".

3-1. PHASE ADJUSTMENT (Loading/Unloading Driving Section)

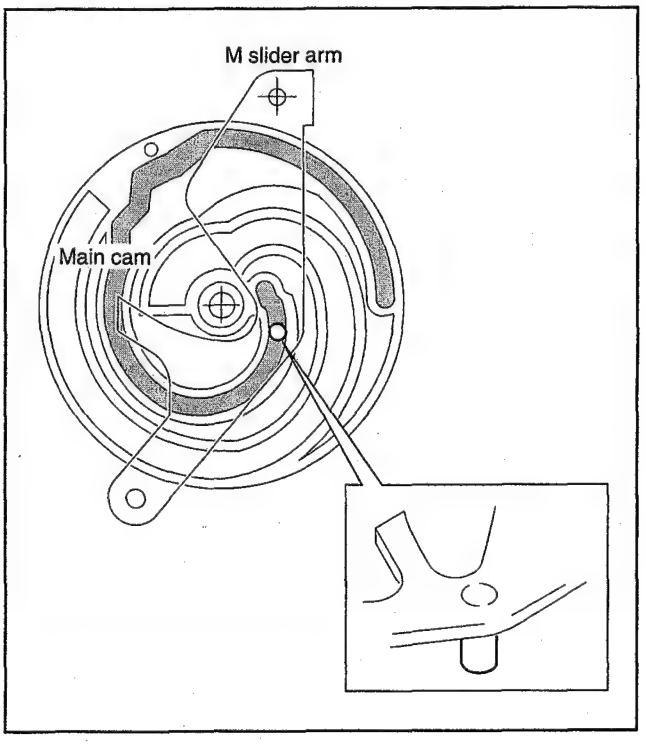
Note 1: Adjust it at the (UNLOADING) position unless otherwise specified.
Note 2: Ⓐ to Ⓖ shown below are the orders for the phase adjustment.



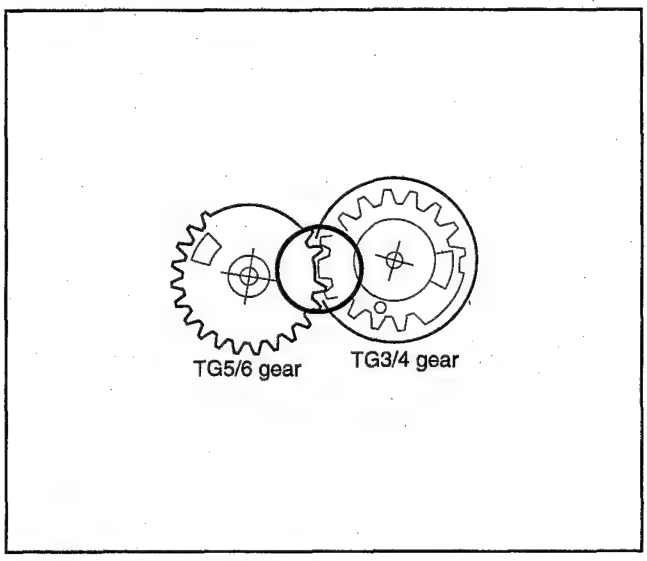
PHASE ADJUSTMENT Ⓐ



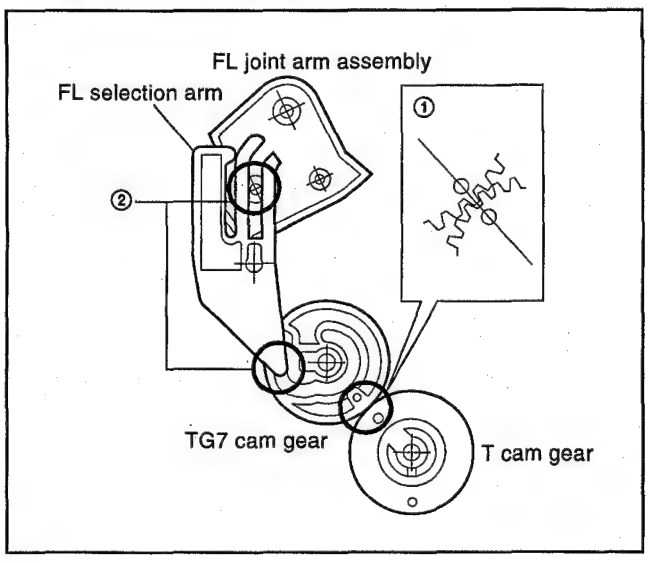
PHASE ADJUSTMENT Ⓑ



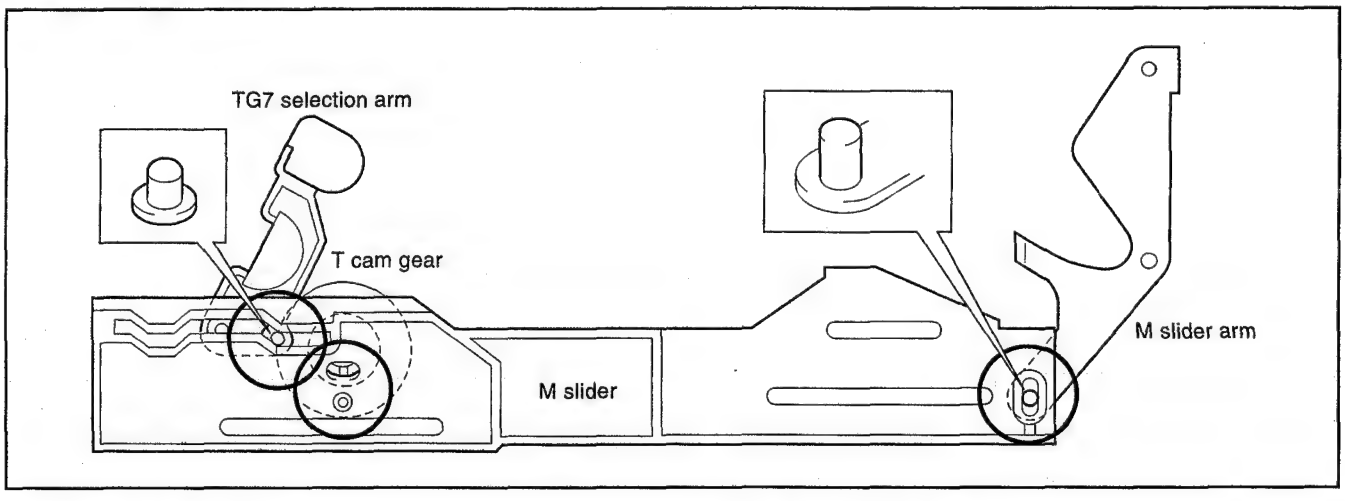
PHASE ADJUSTMENT Ⓒ



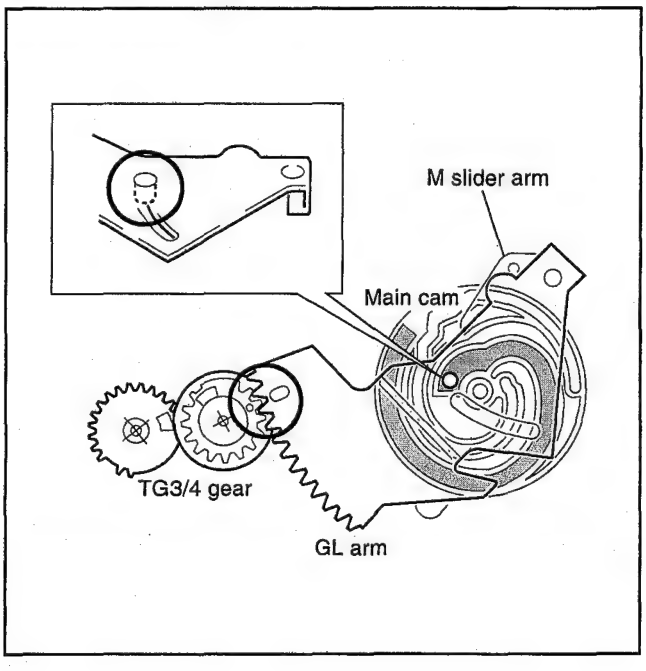
PHASE ADJUSTMENT Ⓓ



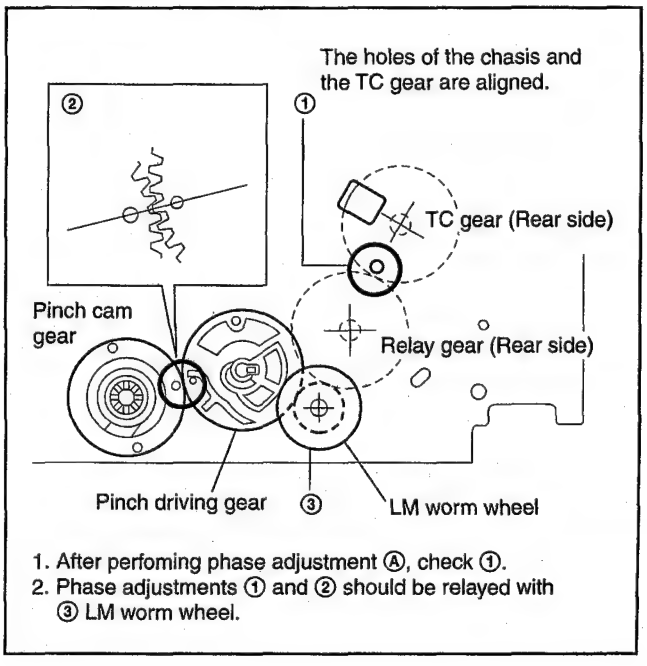
PHASE ADJUSTMENT Ⓔ



PHASE ADJUSTMENT Ⓕ



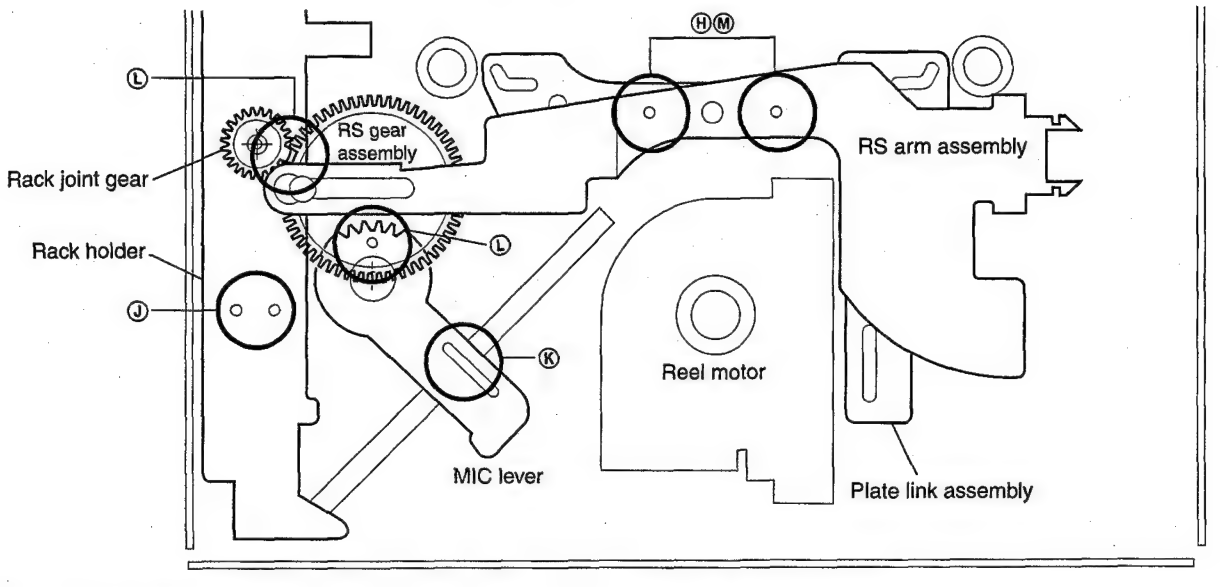
PHASE ADJUSTMENT Ⓖ



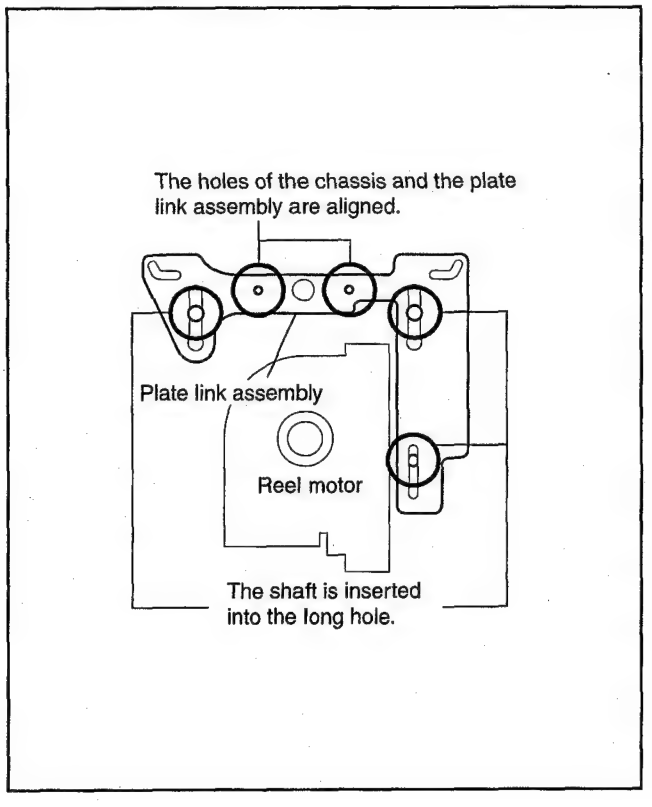
1. After perfoming phase adjustment Ⓐ, check ①.
2. Phase adjustments ① and ② should be relayed with ③ LM worm wheel.

3-2. PHASE ADJUSTMENT (S/L Cassette Selection Section)

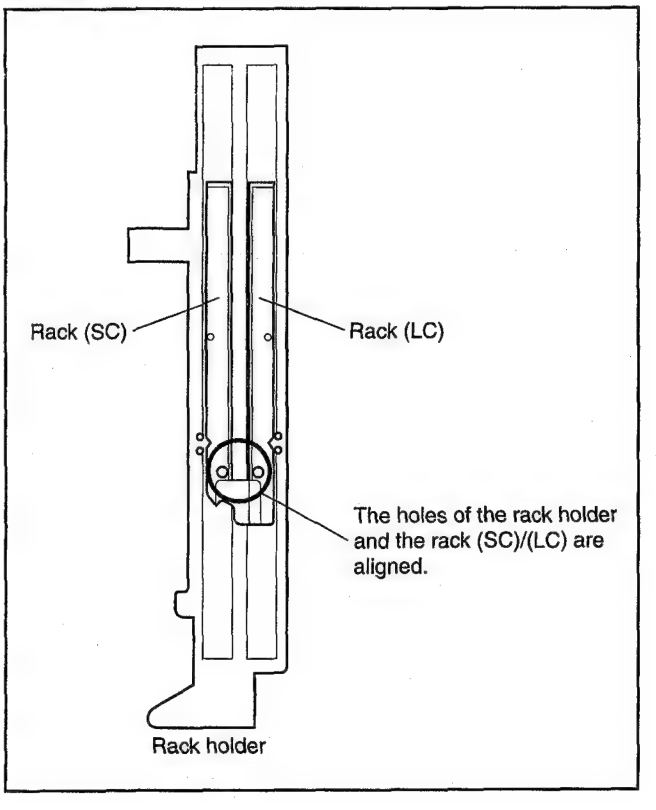
Note 1: Adjust if at the **S/L cassette** position unless otherwise specified.
Note 2: Ⓗ to Ⓜ shown below are the orders for the phase adjustment.



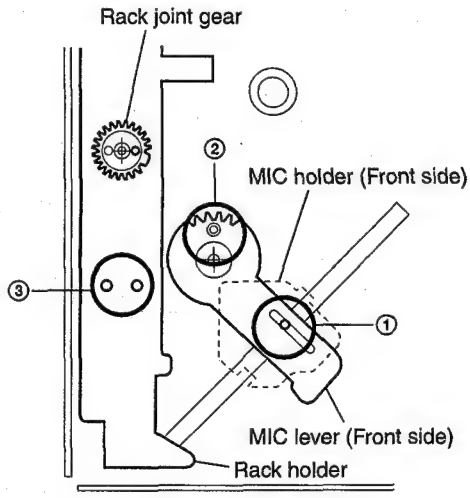
PHASE ADJUSTMENT Ⓗ



PHASE ADJUSTMENT Ⓙ

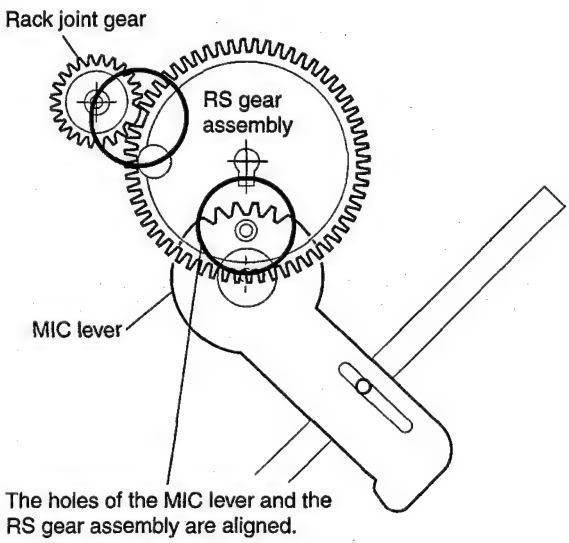


PHASE ADJUSTMENT Ⓚ

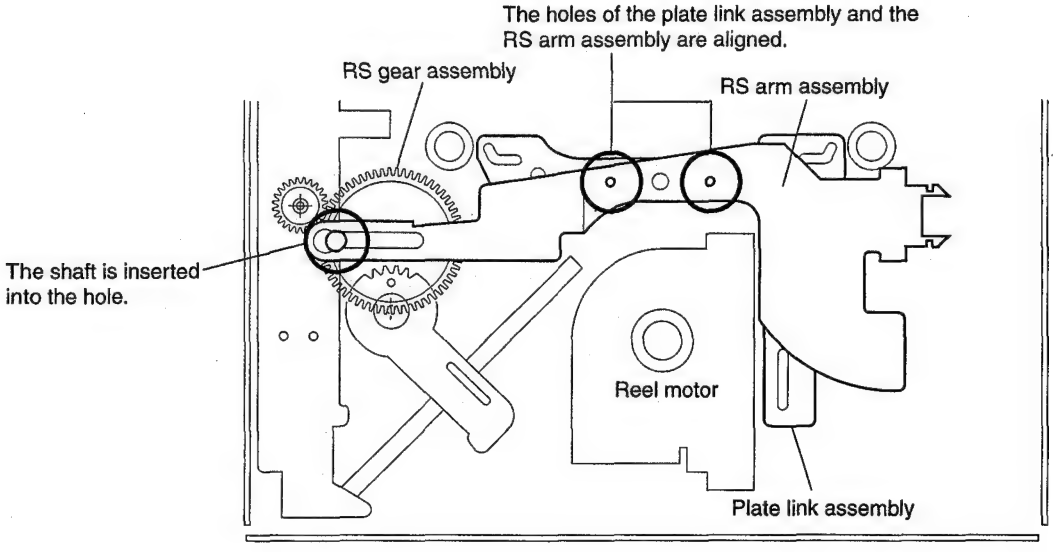


Note: ② should be aligned with the hole of the chassis.
: ③ should be aligned with the hole of the rack (SC)/(LC).

PHASE ADJUSTMENT Ⓛ



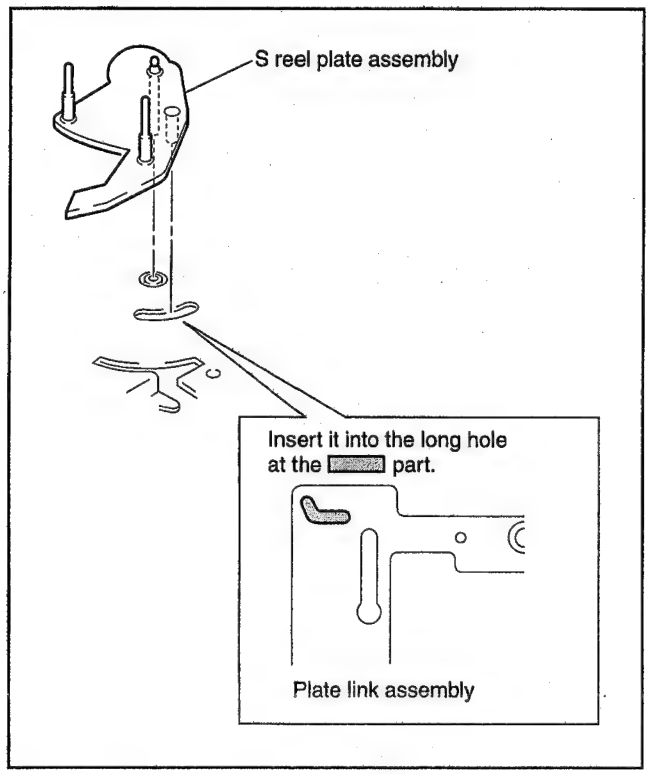
PHASE ADJUSTMENT Ⓜ



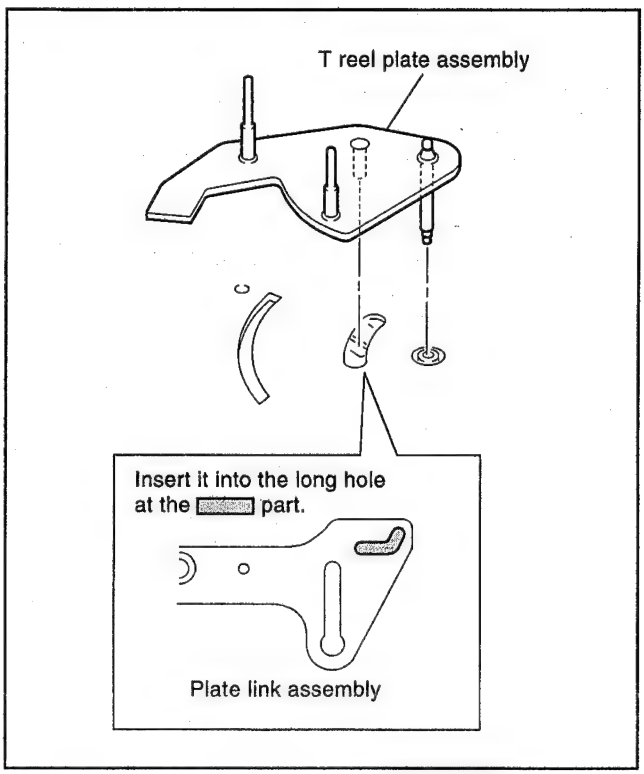
3-3. PHASE ADJUSTMENT (Mechanism Chassis Upper Surface Parts)

Note: Adjust if at the (UNLOADING) position unless otherwise specified.

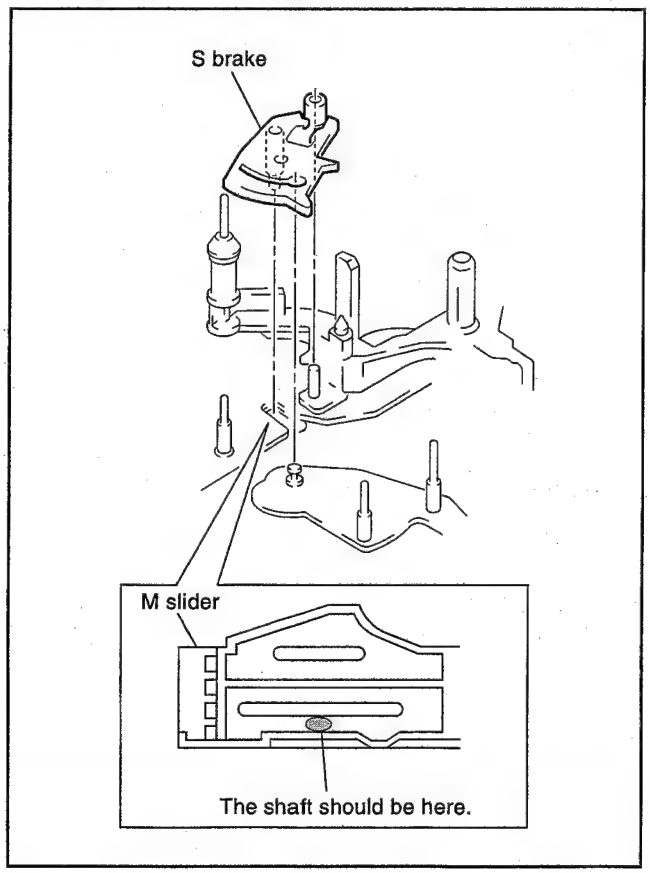
PHASE ADJUSTMENT Ⓝ



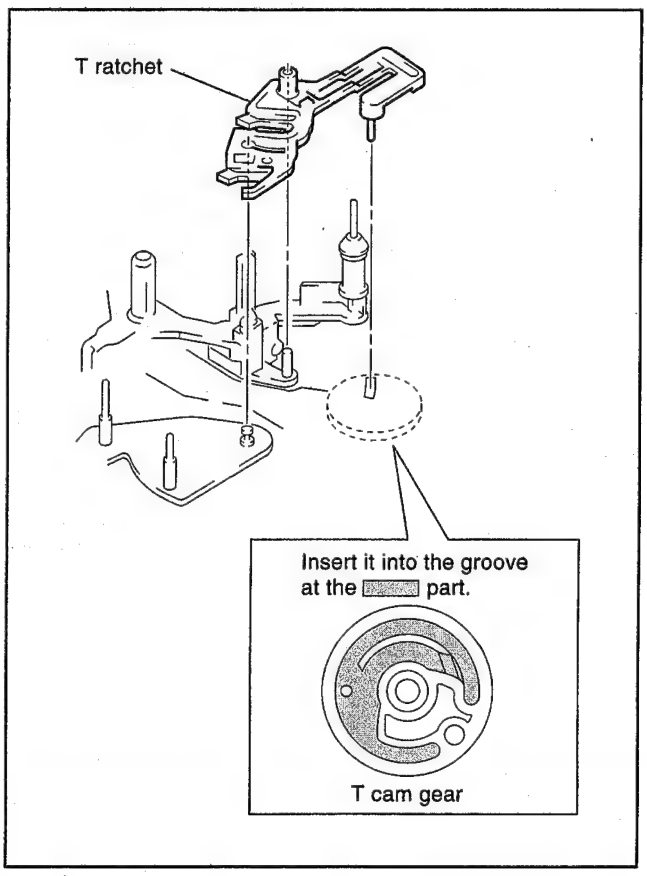
PHASE ADJUSTMENT Ⓟ



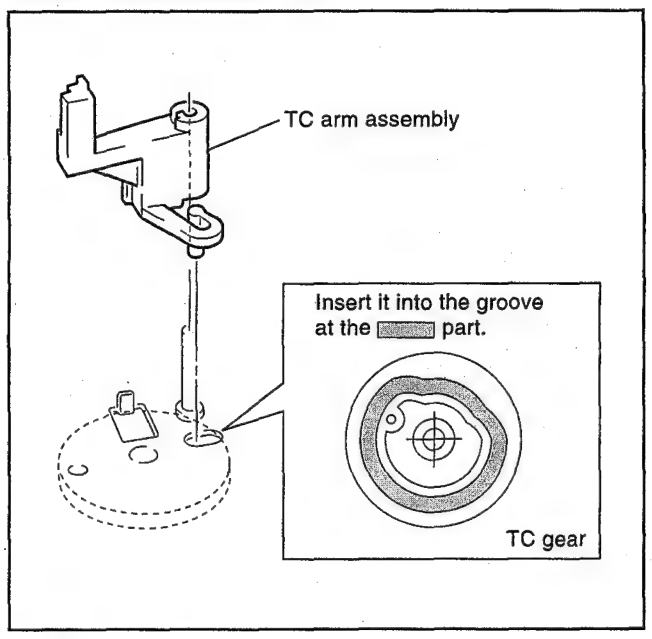
PHASE ADJUSTMENT Ⓠ



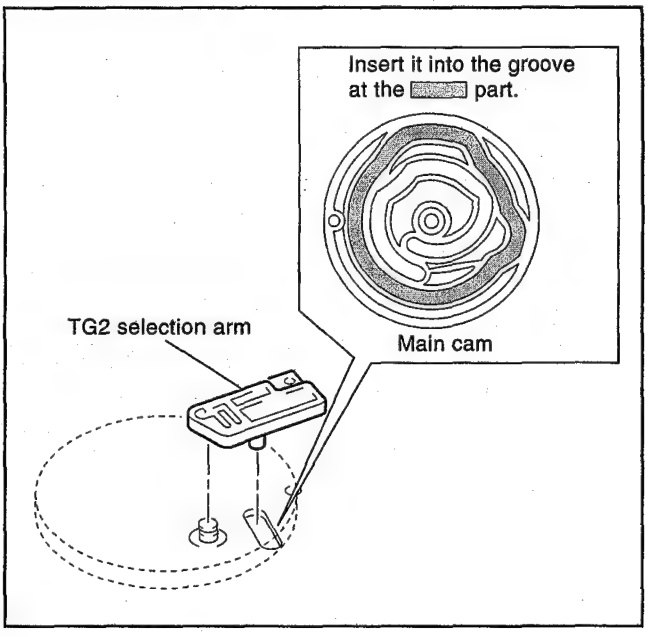
PHASE ADJUSTMENT Ⓡ



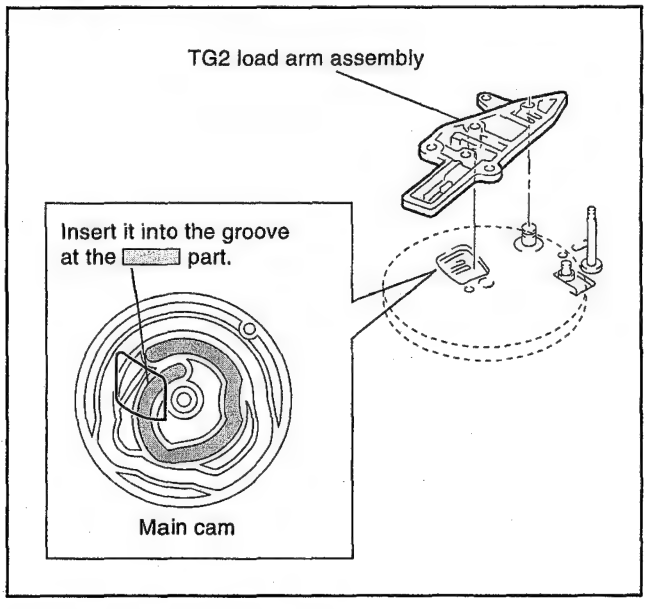
PHASE ADJUSTMENT ⓢ



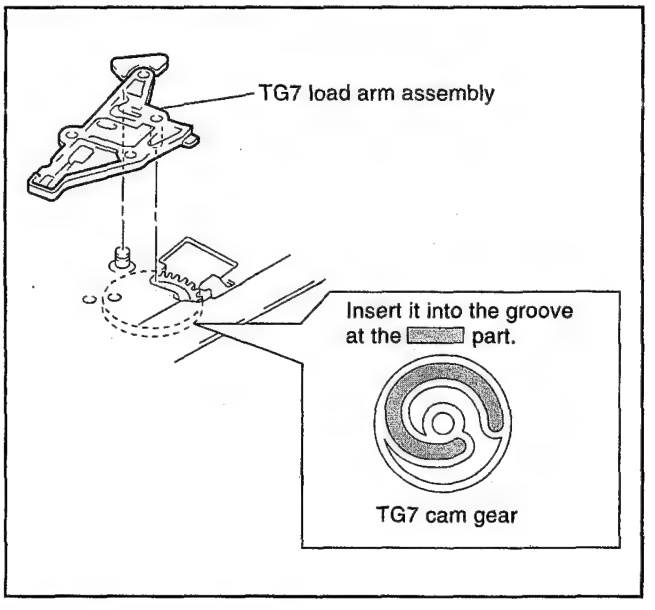
PHASE ADJUSTMENT ⓣ



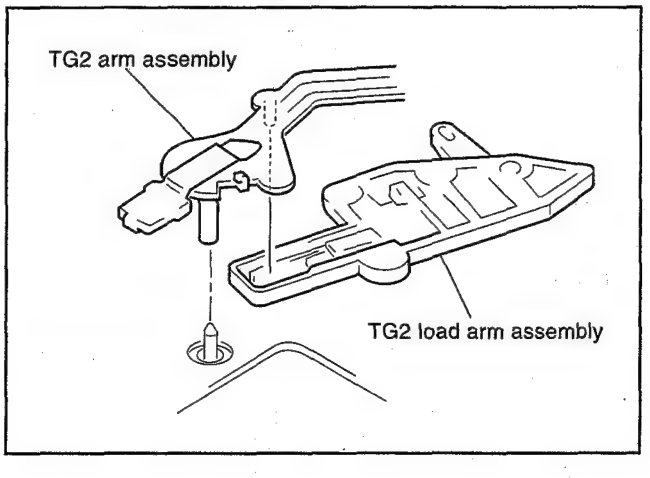
PHASE ADJUSTMENT ⓤ



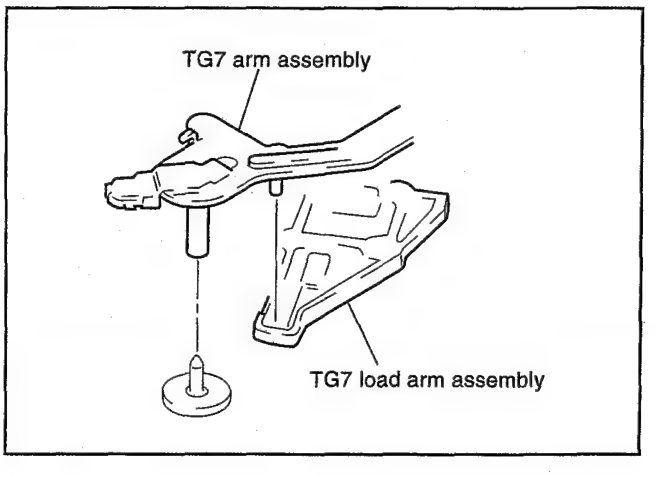
PHASE ADJUSTMENT ⓥ



PHASE ADJUSTMENT ⓦ



PHASE ADJUSTMENT ⓧ



5-1-4. PERIODIC CHECK AND MAINTENANCE

- Carry out the following maintenance and periodic checks not only to fully display the functions and performance of the set, but also for the equipment and tape. After repairing, service the set as follows, regardless of the length of use.

4-1. CLEANING OF ROTARY DRUM ASSEMBLY

1) Press a wiping cloth (Ref No. J-2) moistened with cleaning fluid (Ref No. J-1) against the rotary drum assembly gently, and clean it while rotating the upper rotary drum assembly slowly with your finger in the counterclockwise direction.

Note: Do not rotate the motor on power or rotate the upper rotary drum assembly in the clockwise direction with your finger. The head tip will also be damaged if the wiping cloth is moved perpendicularly against it.
Therefore, be sure to follow the above instructions when cleaning the rotary drum assembly.

4-2. CLEANING OF TAPE PATH SYSTEM (See Fig. 1.)

1) In the EJECT mode, clean the tape path systems (TG-1, 2, 3, 4, 5, 6, 7, 8, capstan) and the lower drum using a superfine applicator (Ref No. J-3) moistened with cleaning fluid.

Note 1: Make sure that no oil or grease of the link mechanisms sticks to the superfine applicator. (Ref No. J-3)

Note 2: Do not use a applicator moistened with alcohol to the other guide cleaning. But clean the pinch roller using alcohol.

Note: When cleaning the tape path system, be sure to set it to the (LOADING) position. (Refer to page 5-3)

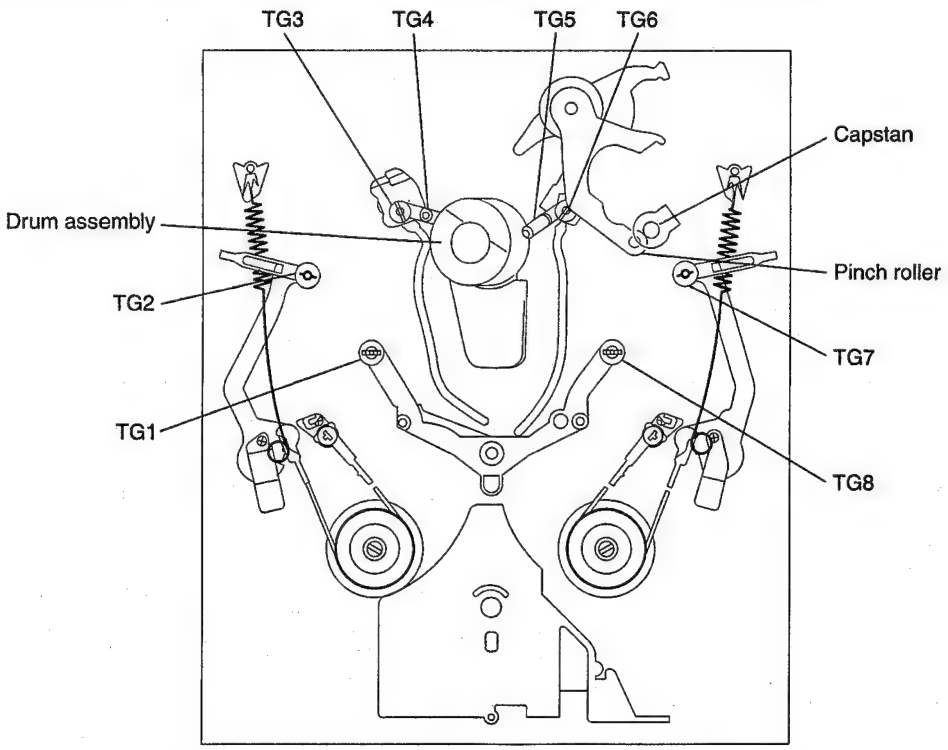


Fig. 1.

4-3. PERIODIC CHECKS

Location of Maintenance and Check		Hours of Use (H)										Remarks
		500	1000	1500	2000	2500	3000	3500	4000	4500	5000	
	Cleaning of tape path surface	○	○	○	○	○	○	○	○	○	○	Take care not to adhere the oil.
	Cleaning and degaussing of rotary drum assembly	○	○	○	○	○	○	○	○	○	○	
Driving System	Capstan shaft (Bearing)	–	☆	–	☆	–	☆	–	☆	–	☆	Make sure that no oil gets on the tape path surface.
	Loading motor	–	☆	–	☆	–	☆	–	☆	–	☆	A-7026-007-A
Performance Confirmation	Abnormal noise	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	Back tension measurement	–	☆	–	☆	–	☆	–	☆	–	☆	
	Brake system	–	☆	–	☆	–	☆	–	☆	–	☆	
	FWD / RVS Torque measurement	–	☆	–	☆	–	☆	–	☆	–	☆	

○: Cleaning ☆: Confirmation

Note: When overhauling, refer to the checks above and replace parts.

Note: Grease

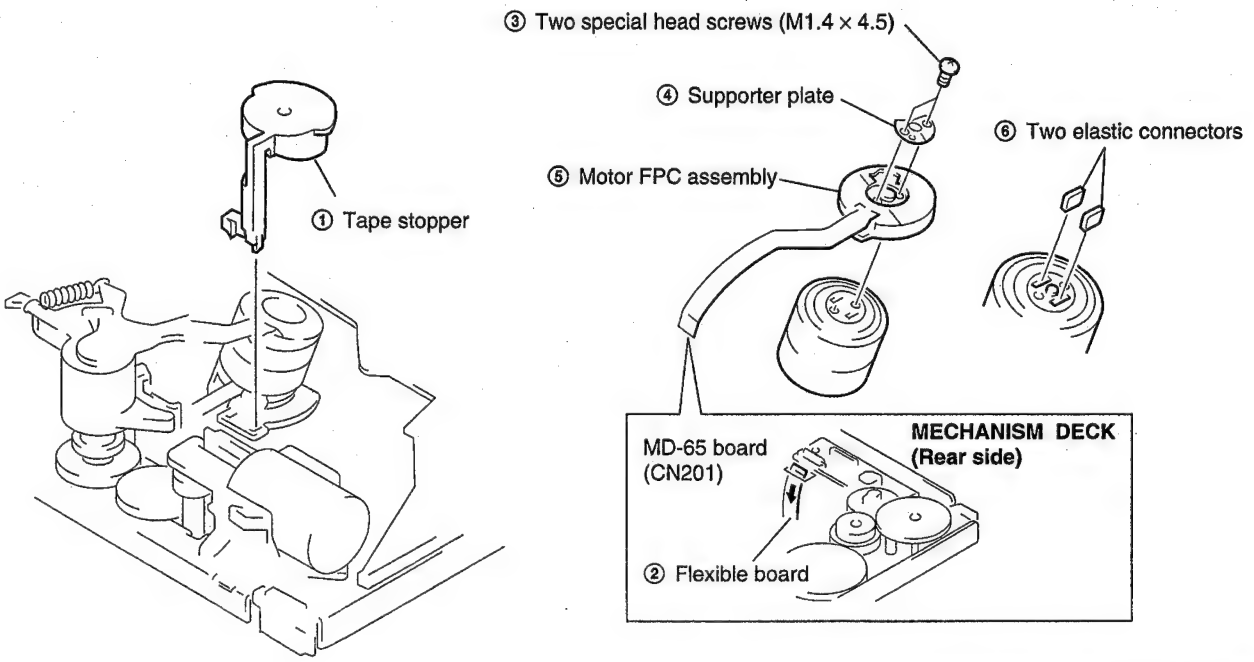
- Be sure to use the specified the grease. (The SG-055G is used all in the E mechanism)
  Check the quantity of grease when installing the parts which is needed to apply the grease.
- FLOIL (SG-055G): Part No. 7-651-000-09

5-1-5. MECHANISM SECTION CHECKS AND REPLACEMENTS

5-1. TAPE STOPPER, MOTOR FPC ASSEMBLY AND ELASTIC CONNECTOR

• Removing/Attaching

- Removing: ① → ② → ③ → ④ → ⑤ → ⑥
- Attaching : ⑥ → ⑤ → ④ → ③ → ② → ① → Adjust them according to the flowchart (START-3) on page 5-43.

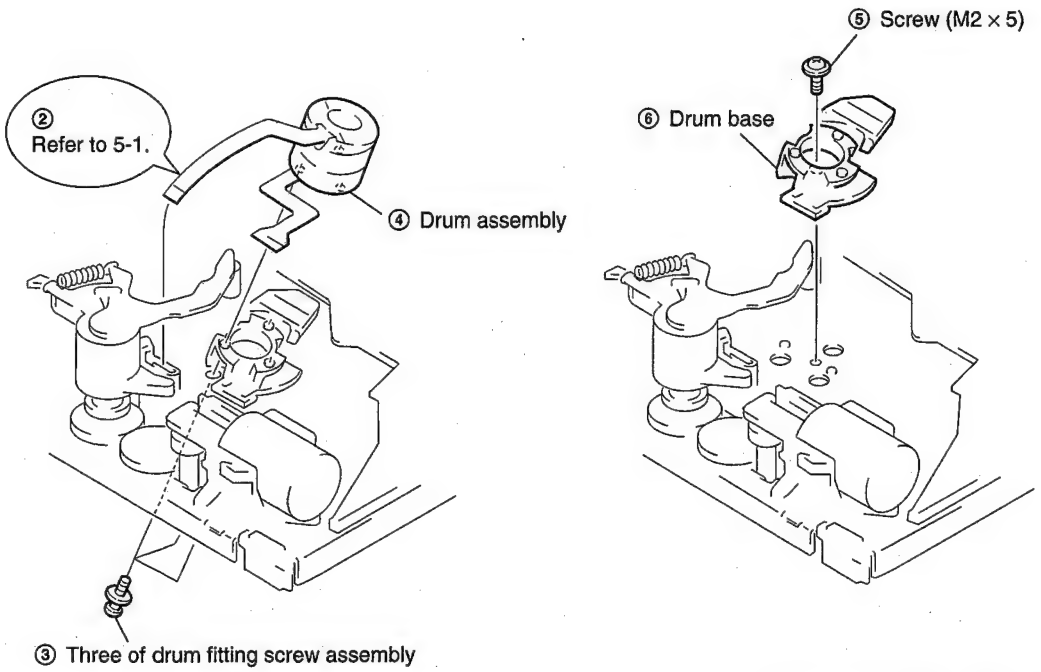


Fixing torque: 0.0490 N•m (0.5 kg•cm)

5-2. DRUM ASSEMBLY AND DRUM BASE

• Removing/Attaching

- Removing: ① Tape stopper (Refer to 5-1.) → ② → ③ → ④ → ⑤ → ⑥
- Attaching : ⑥ → ⑤ → ④ → ③ → ② → ① → Adjust them according to the flowchart (START-3) on page 5-43.



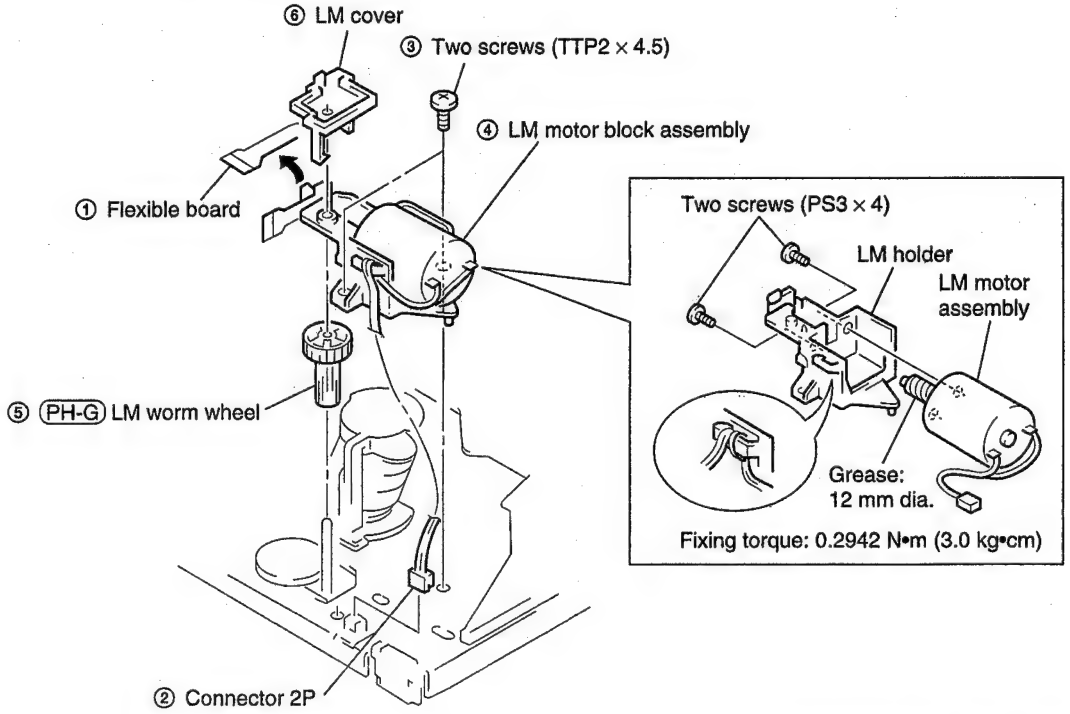
Fixing torque ③: 0.0294 N•m (0.3 kg•cm)
⑤: 0.0686 N•m (0.7 kg•cm)

(PH-G) : Page 5-7
(PH-S) : Page 5-11

5-3. LM COVER, LM WORM WHEEL, LM HOLDER AND LM MOTOR ASSEMBLY

• **Removing/Attaching**

• Removing: ① → ② → ③ → ④ → ⑤ → ⑥
• Attaching : ⑥ → ⑤ → ④ → ③ → ② → ①

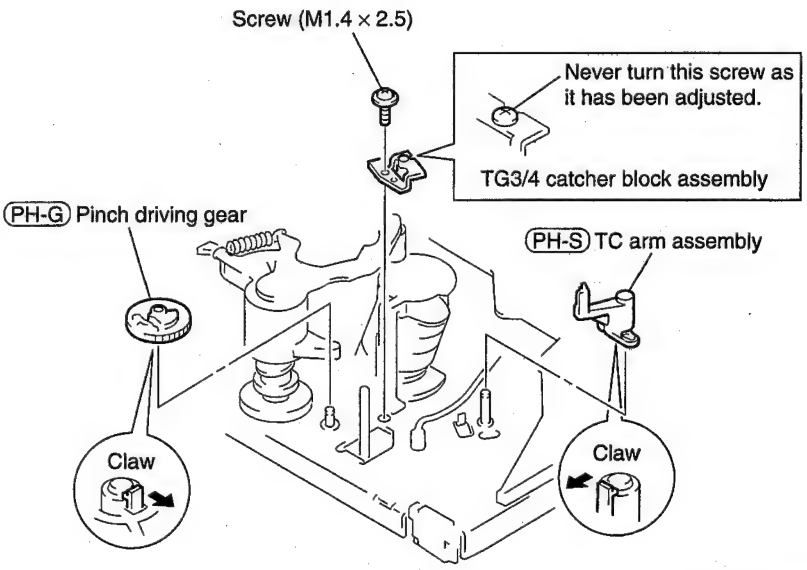


Fixing torque ③: 0.1961 N•m (2.0 kg•cm)

5-4. TG3/4 CATCHER BLOCK ASSEMBLY, PINCH DRIVING GEAR AND TC ARM ASSEMBLY

• **Removing/Attaching**

• Removing: After removing the LM motor assembly (Refer to 5-3.), remove each part.
• Attaching : After attaching each part and the LM motor block assembly, adjust them according to the flowchart (START-3) on page 5-43. (Only when the TG3/4 catcher block assembly is removed)



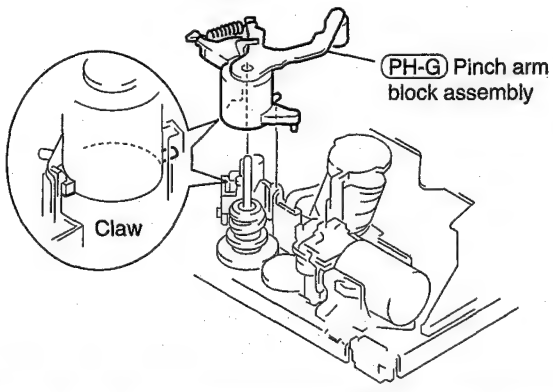
Fixing torque: 0.0686 N•m (0.7 kg•cm)

5-5. PINCH ARM ASSEMBLY, PINCH LIMITER AND TENSION COIL SPRING (PINCH)

1. Removing

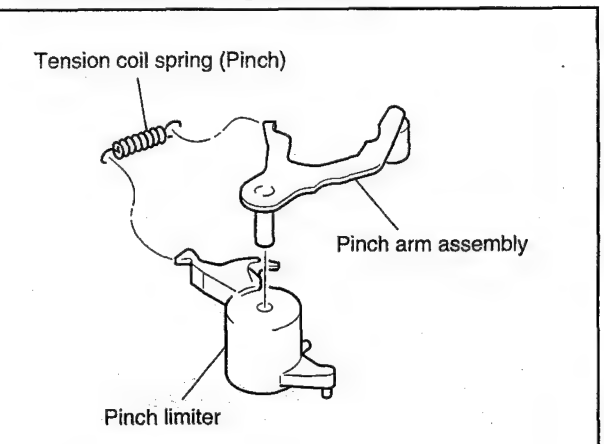
①. Set the (UNLOADING) position. (Refer to page 5-3)

②. Pinch arm block assembly.



Note: After check the phase adjustment (PH-G), attach the pinch arm block assembly.

③. Pinch arm assembly and pinch limiter.



2. Attaching

❶. Attach the parts in the order of ① → ③ → ②.

❷. Adjust them according to the flowchart (START-3) on page 5-43.

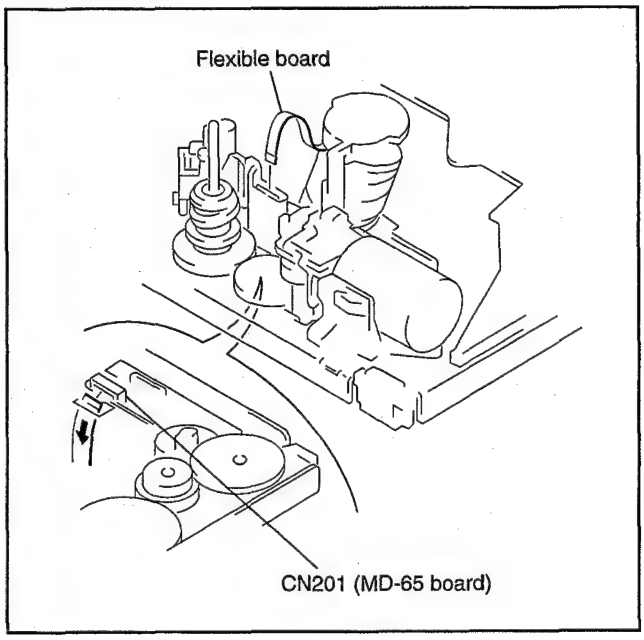
5-6. HC ARM, HC ROLLER ASSEMBLY, PINCH RETAINER, PINCH CAM GEAR AND TG5/6 CATCHER BLOCK ASSEMBLY

1. Removing

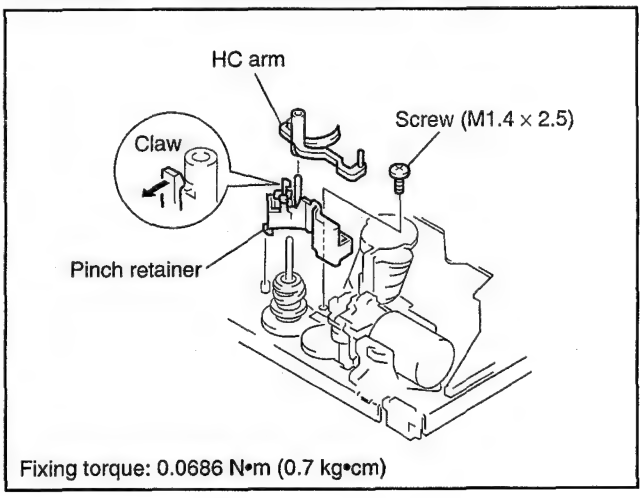
①. Set the (UNLOADING) position. (Refer to page 5-3)

②. Pinch arm block assembly. (Refer to 5-5)

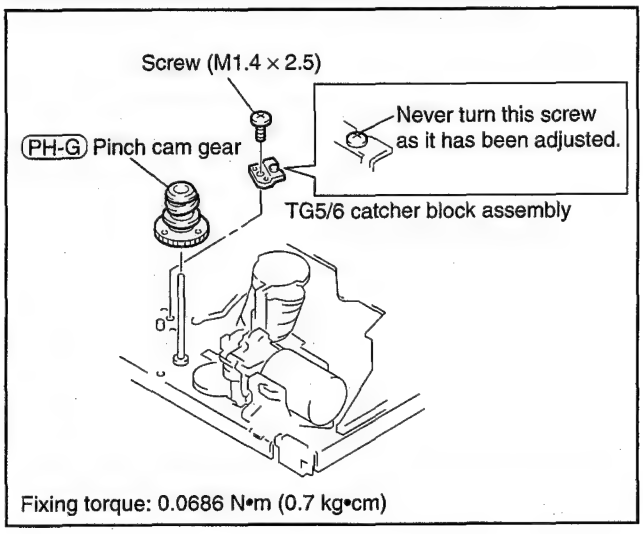
③. Flexible board.



④. HC arm, HC roller assembly and pinch retainer.



⑤. Pinch cam gear and TG5/6 catcher block assembly.



2. Attaching

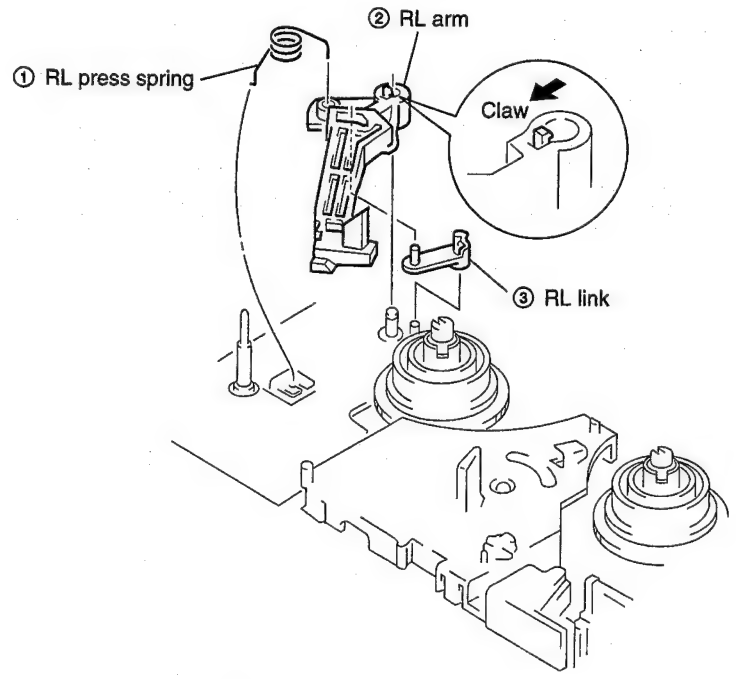
❶. Attach the parts in the order of ① → ⑤ → ④ → ③ → ②.

❷. Adjust them according to the flowchart (START-3) on page 5-43.

5-7. RL ARM AND RL LINK

• **Removing/Attaching** (L cassette position. (Refer to page 5-2))

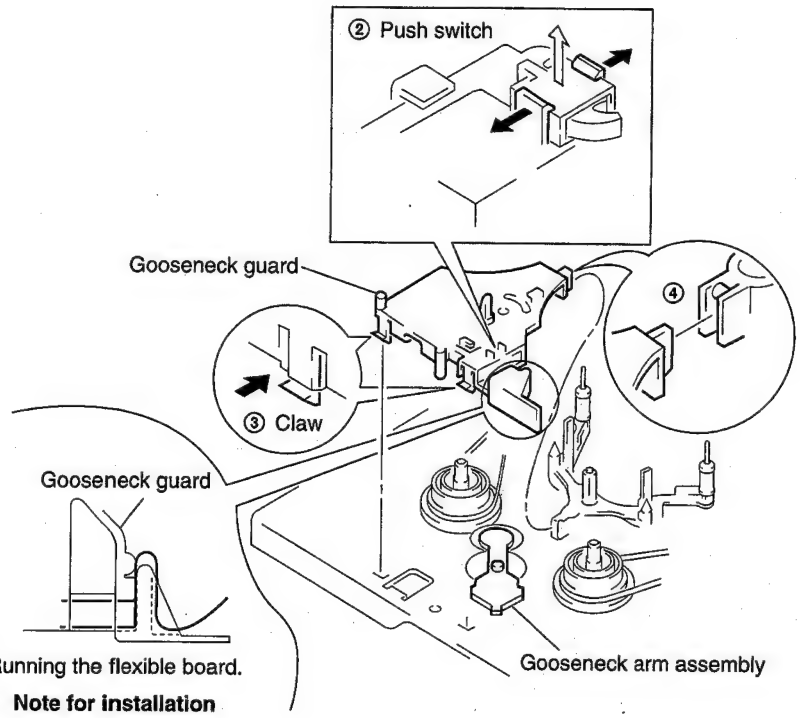
• Removing: ① → ② → ③
• Attaching : ③ → ② → ①

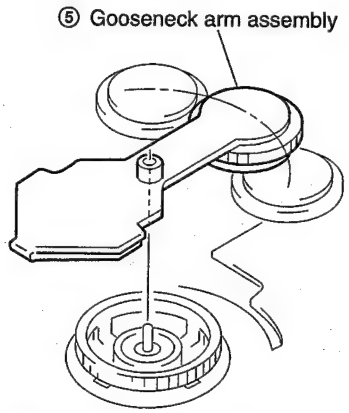


5-8. GOOSENECK GUARD AND GOOSENECK ARM ASSEMBLY

• **Removing/Attaching** (L cassette position. (Refer to page 5-2))

• Removing: ① Remove the RL arm. (Refer to 4-7) → ② → ③ → ④ → ⑤
• Attaching : ⑤ → ④ → ③ → ② → ①





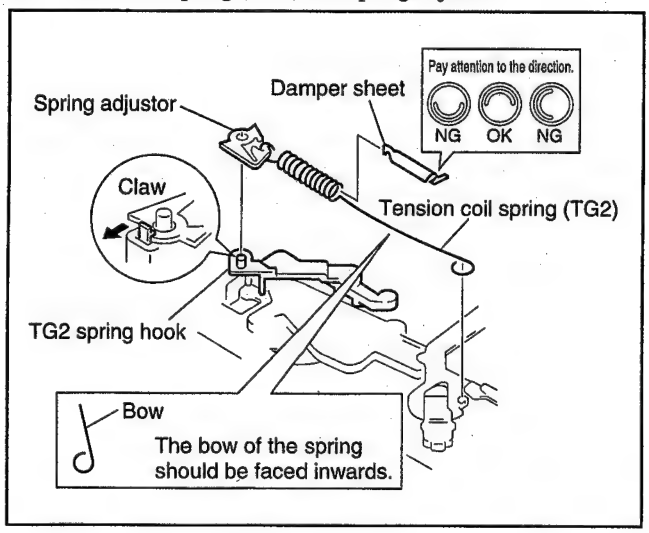
Note: When attaching, slide it in the right or left direction.

5-9. TENSION COIL SPRING (TG2), SPRING ADJUSTOR, TG2 SPRING HOOK, TG2 SELECTION ARM AND DAMPER SHEET

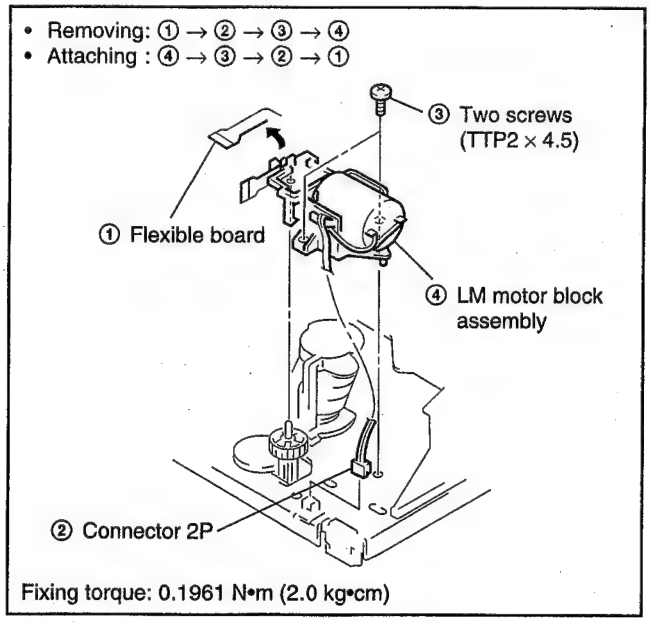
1. Removing

①. Set the (UNLOADING) position. (Refer to page 5-3)

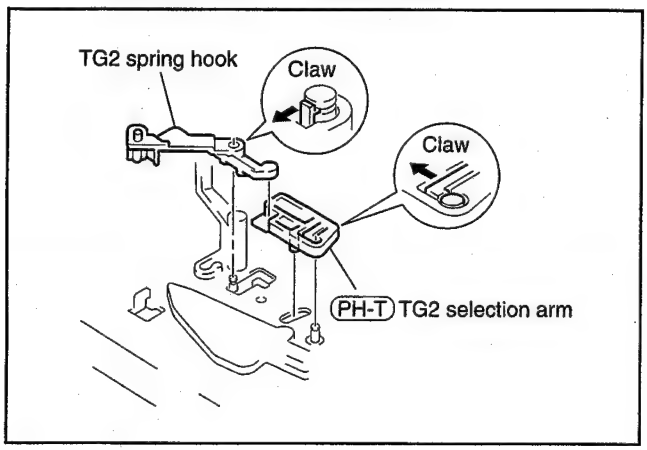
②. Tension coil spring (TG2) and spring adjustor.



③. LM motor block assembly.



④. TG2 spring hook and TG2 selection arm.



2. Attaching

❶. Attach the parts in the order of ① → ④ → ② → ③.

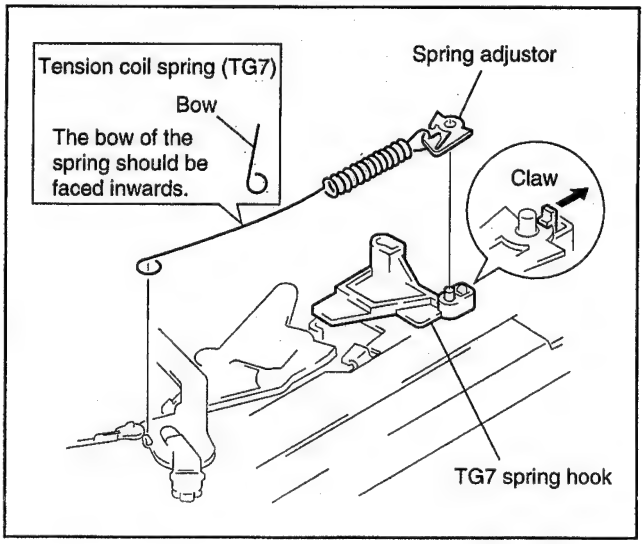
❷. Adjust them according to the flowchart (START-2) on page 5-43.

5-10. TENSION COIL SPRING (TG7), SPRING ADJUSTOR AND TG7 SPRING HOOK

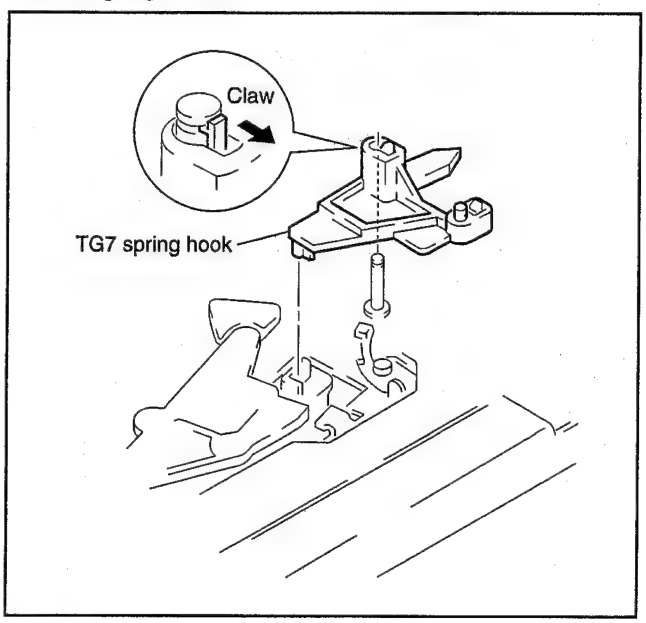
1. Removing

①. Set the (UNLOADING) position. (Refer to page 5-3)

②. Tension coil spring (TG7) and spring adjustor.



③. TG7 spring hook.



2. Attaching

❶. Attach the parts in the order of ① → ③ → ②.

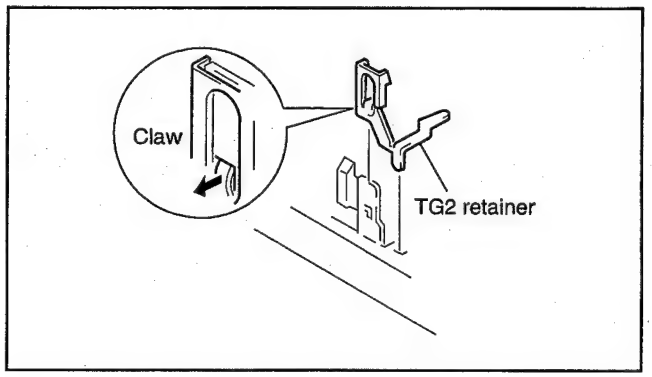
❷. Adjust them according to the flowchart (START-2) on page 5-43.

5-11. TG2 RETAINER, TG2 ARM ASSEMBLY (TG2 PLATE SPRING AND ET MAGNET), S TENSION REGULATOR BAND ASSEMBLY AND TG2 LOAD ARM ASSEMBLY

1. Removing

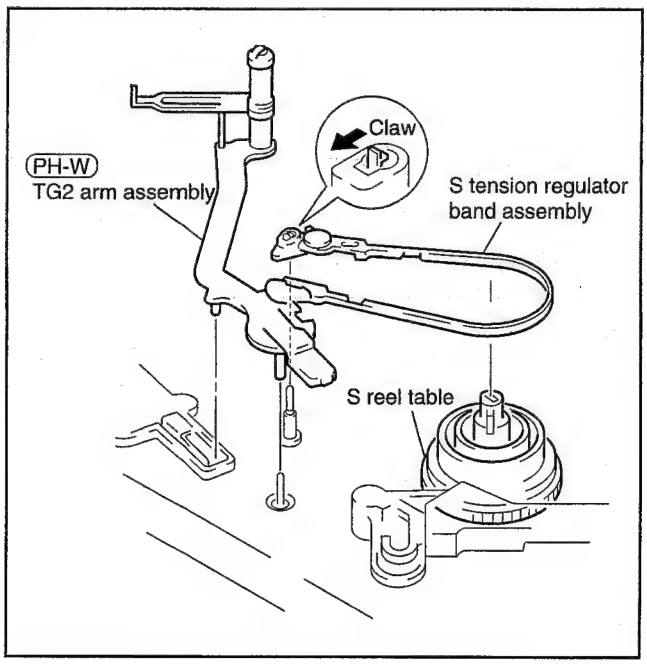
①. Tension coil spring (TG2), spring adjustor, LM motor block assembly and TG2 spring hook. (Refer to 5-9)

②. TG2 retainer.

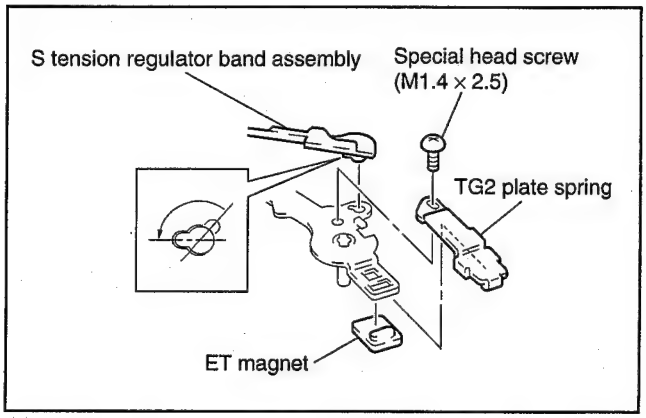


③. Set the (LOADING) position. (Refer to page 5-3)

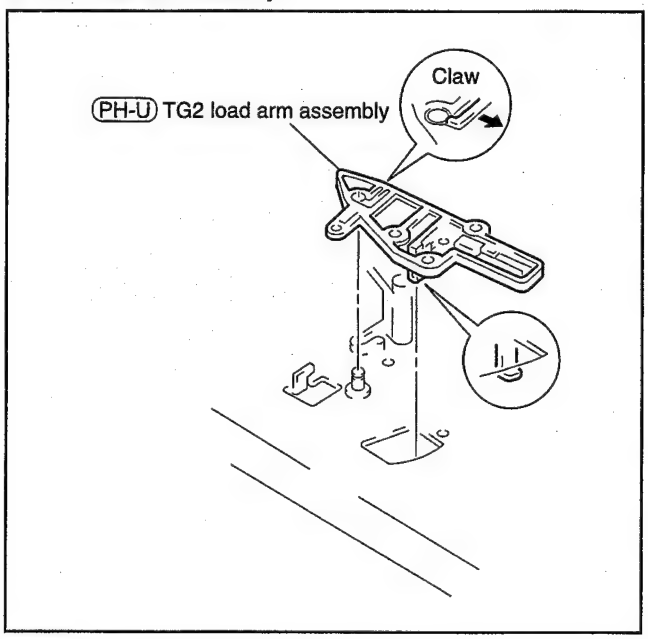
④. TG2 arm assembly and S tension regulator band assembly.



⑤. S tension regulator band assembly, TG2 plate spring and ET magnet.



⑥. TG2 load arm assembly.



2. Attaching

❶. Set the (UNLOADING) position. (Refer to page 5-3)

❷. Attach the parts in the order of ⑥ → ③ → ⑤ → ④ → ② → ①.

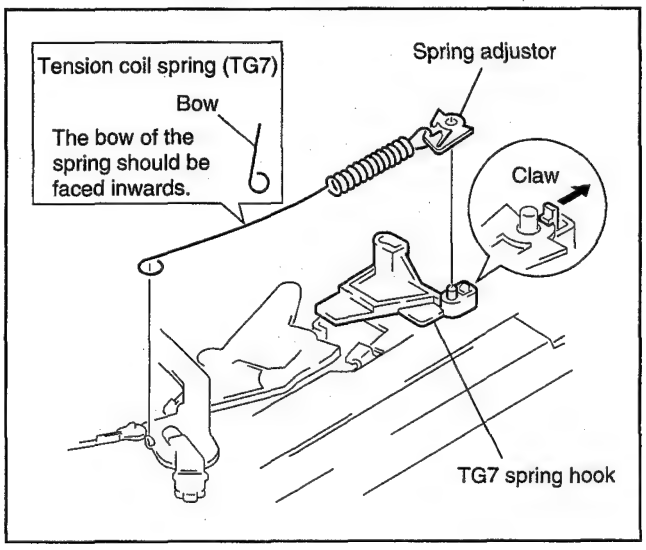
❸. Operation check: (LOADING)/(UNLOADING). (Refer to page 5-3)

❹. Adjust them according to the flowchart (START-2) on page 5-43.

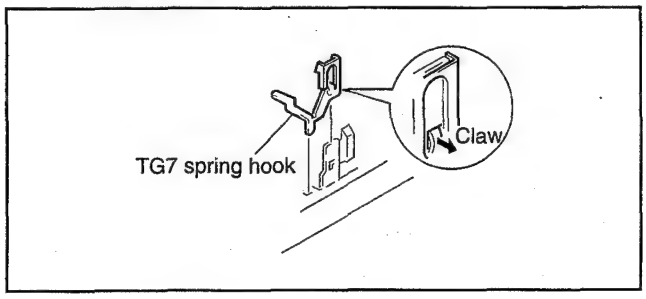
5-12. TG7 RETAINER, TG7 ARM ASSEMBLY (TG7 PLATE SPRING AND ET MAGNET), T TENSION REGULATOR BAND ASSEMBLY AND TG7 LOAD ARM ASSEMBLY

1. Removing

①. Tension coil spring (TG7), spring adjustor.

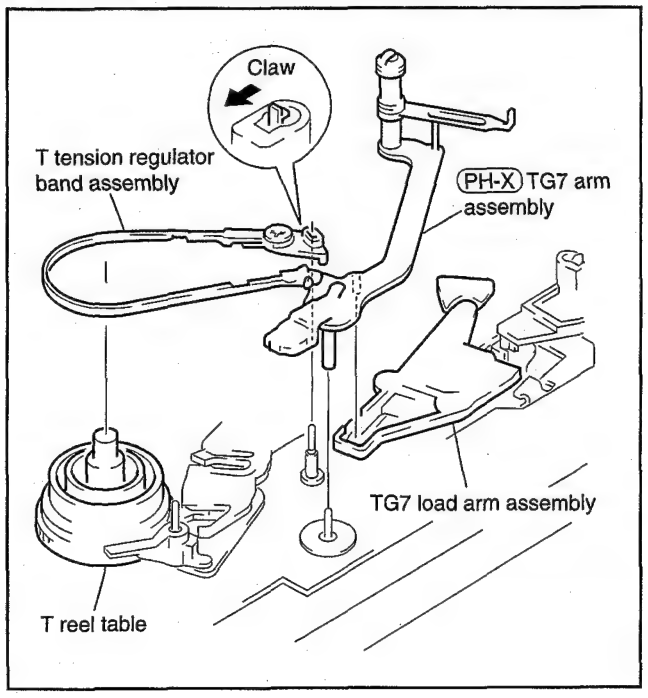


②. TG7 spring hook.

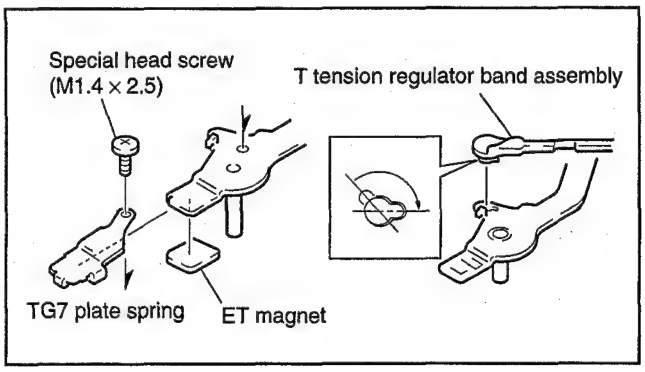


③. Set the (LOADING) position. (Refer to page 5-3)

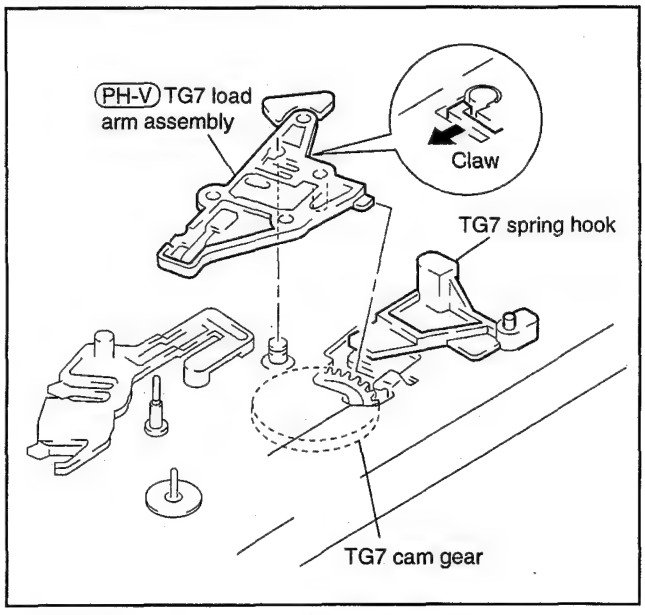
④. TG7 arm assembly and T tension regulator band assembly.



⑤. TG7 plate spring, ET magnet and T tension regulator band assembly.



⑥. TG7 load arm assembly.



2. Attaching

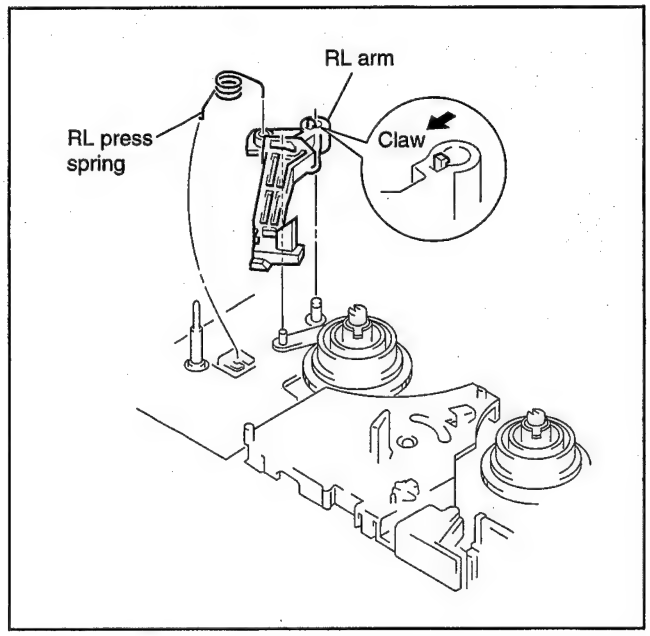
❶. Set the (UNLOADING) position. (Refer to page 5-3)
❷. Attach the parts in the order of ⑥ → ③ → ⑤ → ④ → ② → ①.
❸. Operation check: (LOADING) / (UNLOADING). (Refer to page 5-3.)
❹. Adjust them according to the flowchart (START-2) on page 5-43.

5-13. S REEL TABLE BLOCK ASSEMBLY

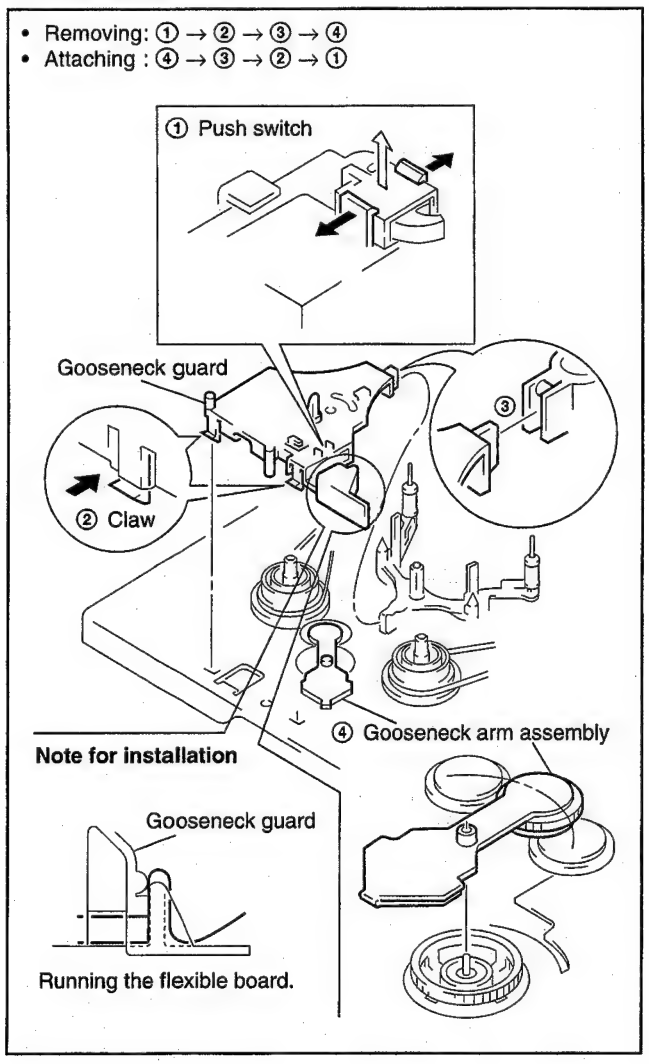
1. Removing

①. Set the (L cassette) position. (Refer to page 5-2)

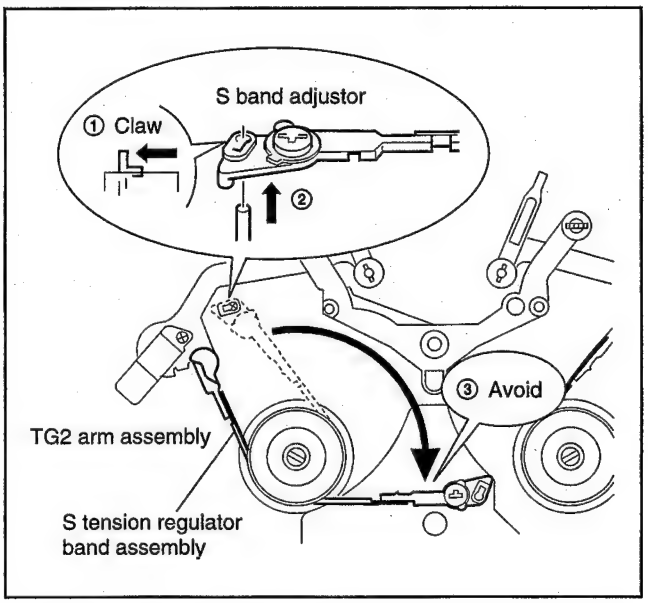
②. RL arm



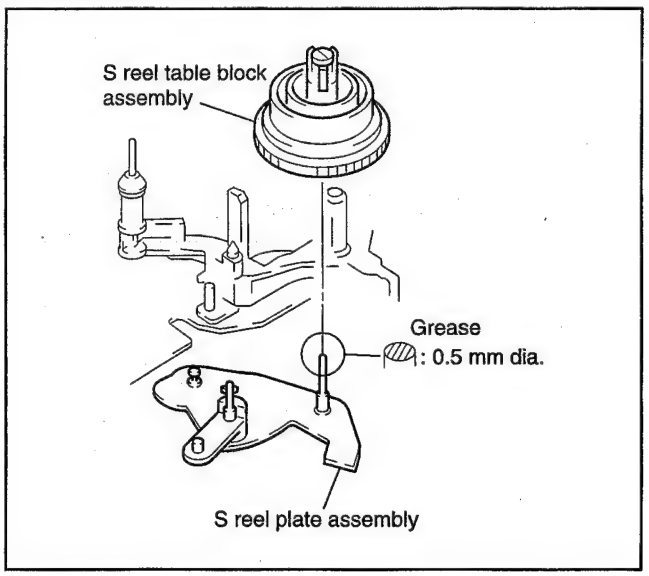
③. Gooseneck guard.



④. S band adjustor.



⑤. S reel table block assembly.



2. Attaching

❶. Attach the parts in the order of ① → ⑤ → ④ → ③ → ②.

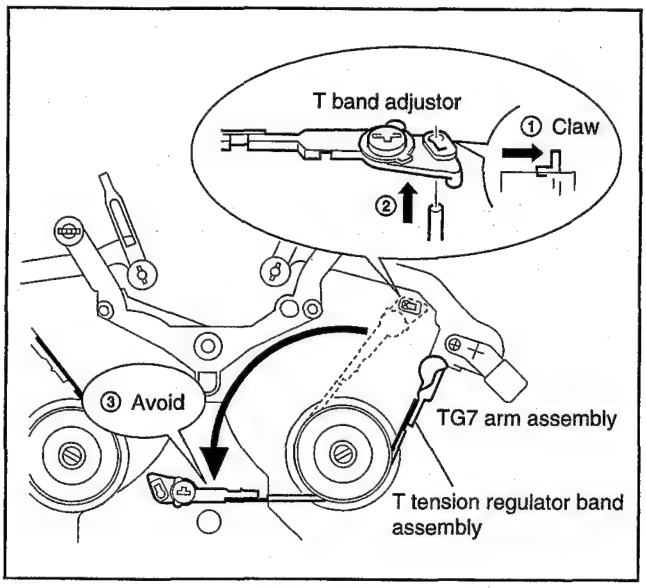
❷. Adjust them according to the flowchart (START-1) on page 5-43.

5-14. T REEL HOLDER AND T REEL TABLE BLOCK ASSEMBLY

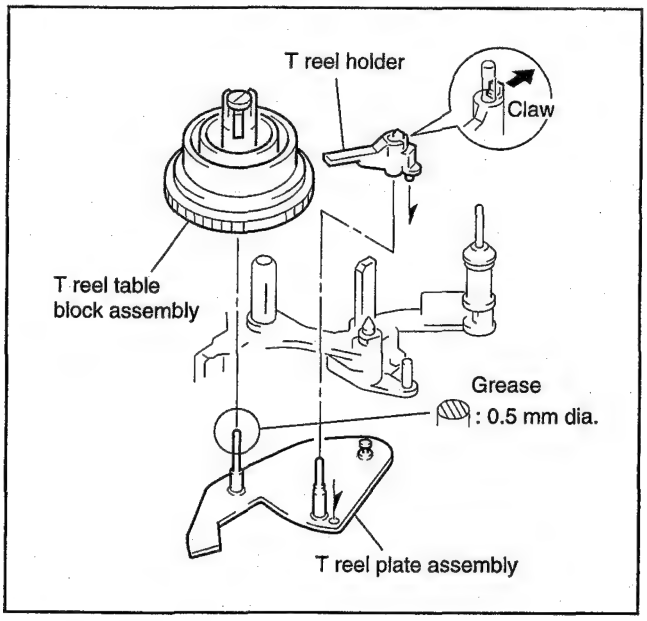
1. Removing

①. Set the L cassette position. (Refer to page 5-2)

②. T band adjustor.



③. T reel holder and T reel table block assembly.



2. Attaching

❶. Attach the parts in the order of ① → ③ → ②.

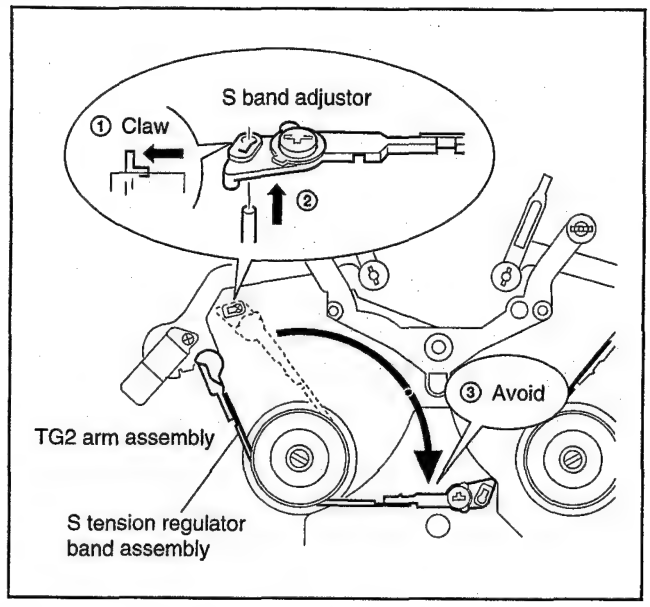
❷. Adjust them according to the flowchart (START-1) on page 5-43.

5-15. S REEL PLATE ASSEMBLY

1. Removing

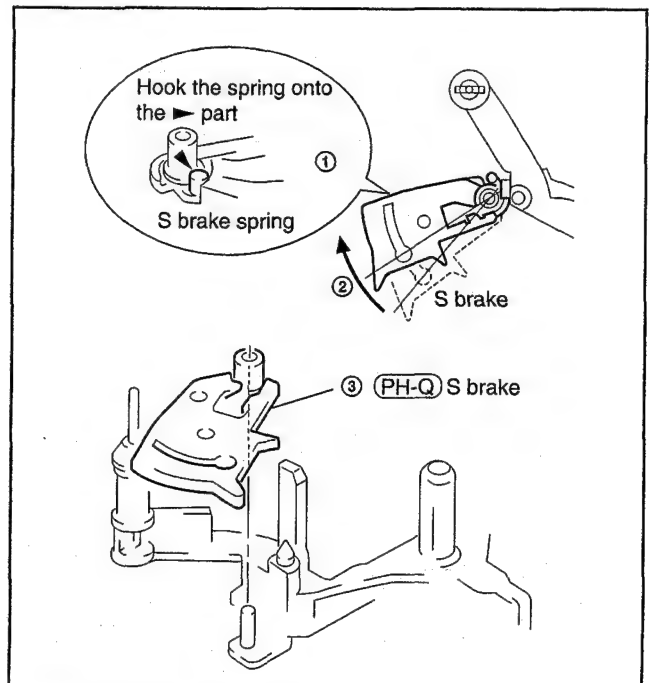
①. Set the L cassette position. (Refer to page 5-2)

②. S band adjustor.



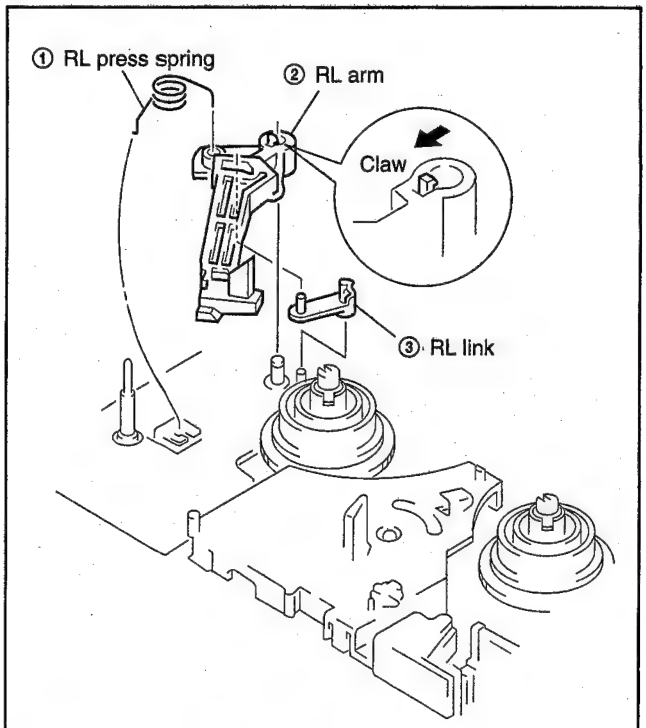
③. Set the LOADING position. (Refer to page 5-3)

④. S brake.



- Removing: ① → ② → ③
- Attaching : ③ → ② → ①

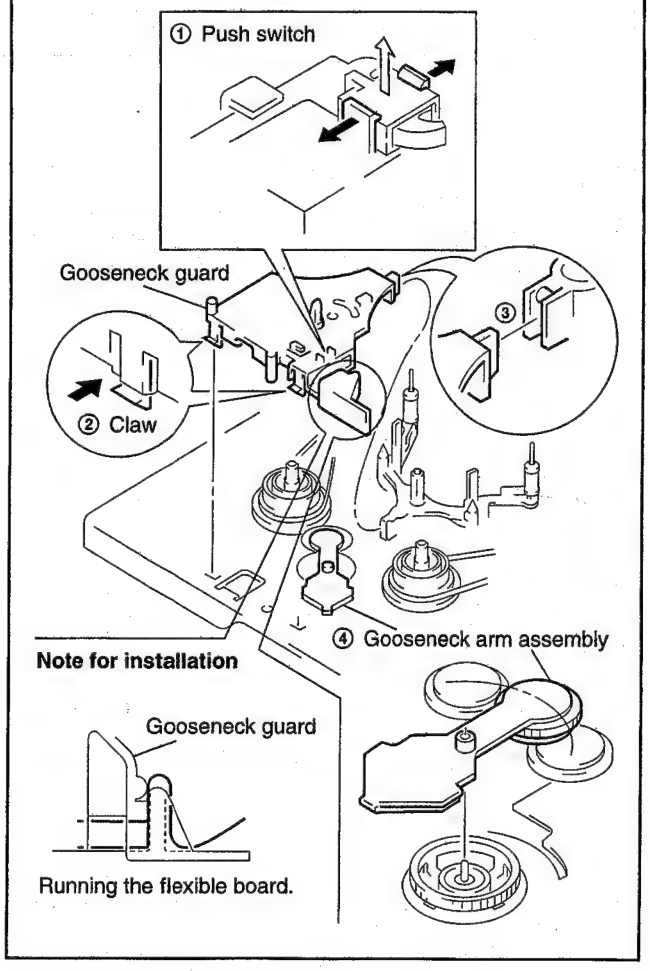
⑤. RL arm and RL link.



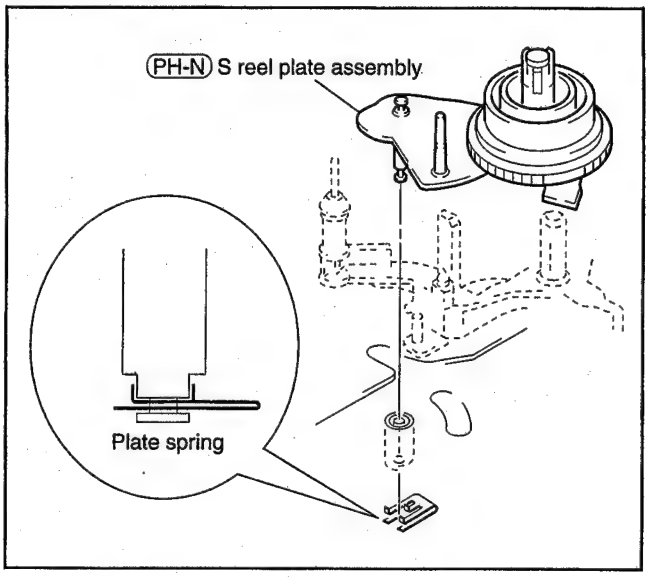
- Removing: ① → ② → ③
- Attaching : ③ → ② → ①

⑥. Gooseneck guard.

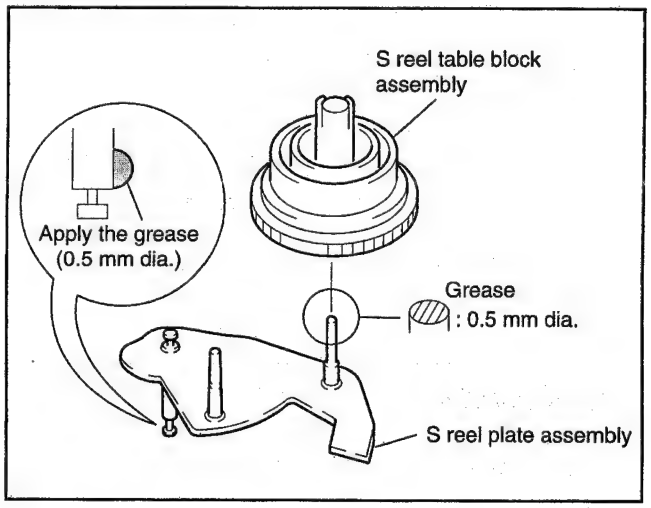
- Removing: ① → ② → ③ → ④
- Attaching : ④ → ③ → ② → ①



⑦. Plate spring



⑧. S reel plate assembly.



2. Attaching

❶. Attach the parts in the order of ① → ⑧ → ⑦ → ④ → ③ → ② → ⑥ → ⑤.

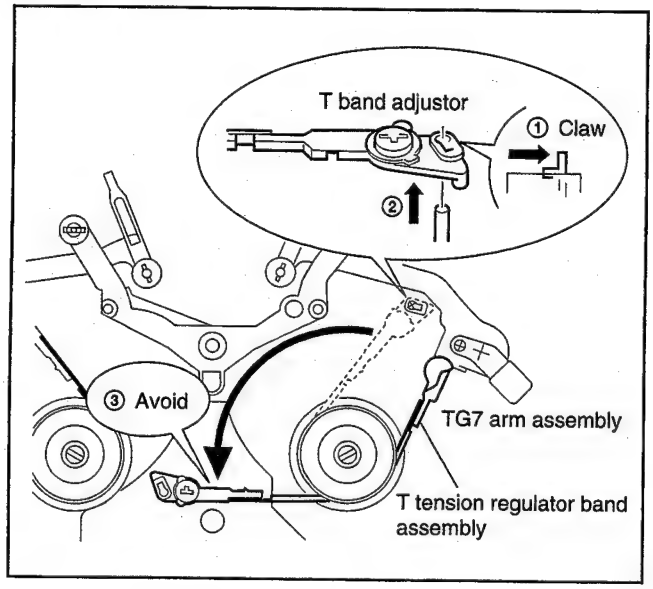
❷. Adjust them according to the flowchart (START-1) on page 5-43.

5-16. T REEL PLATE ASSEMBLY

1. Removing

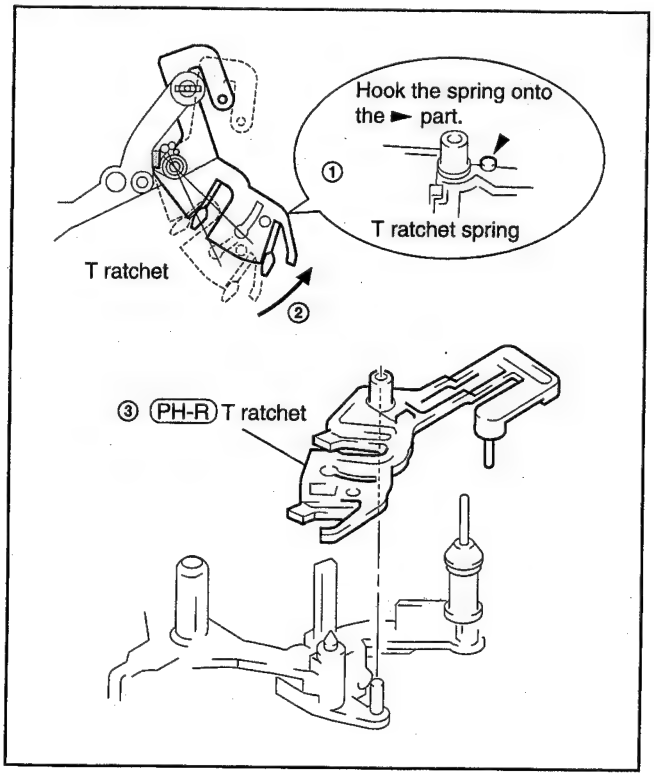
①. Set the (L cassette) position. (Refer to page 5-2)

②. T band adjustor.

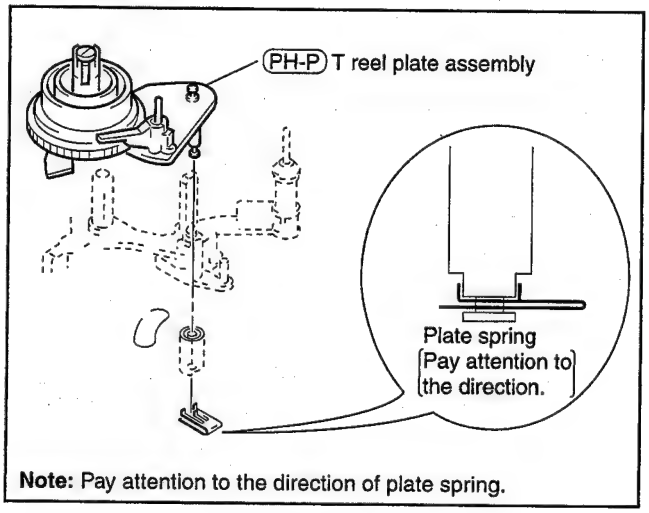


③. Set the (LOADING) position. (Refer to page 5-3)

④. T ratchet.

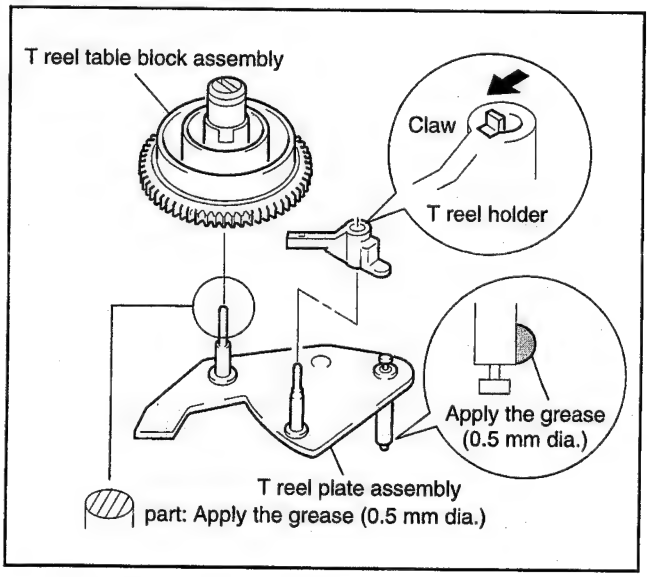


⑤. Plate spring.



Note: Pay attention to the direction of plate spring.

⑥. T reel plate assembly.



2. Attaching

❶. Attach the parts in the order of ① → ⑥ → ⑤ → ③ → ④ → ②.

❷. Adjust them according to the flowchart (START-1) on page 5-43.

(PH-Q), (PH-R) : Page 5-10

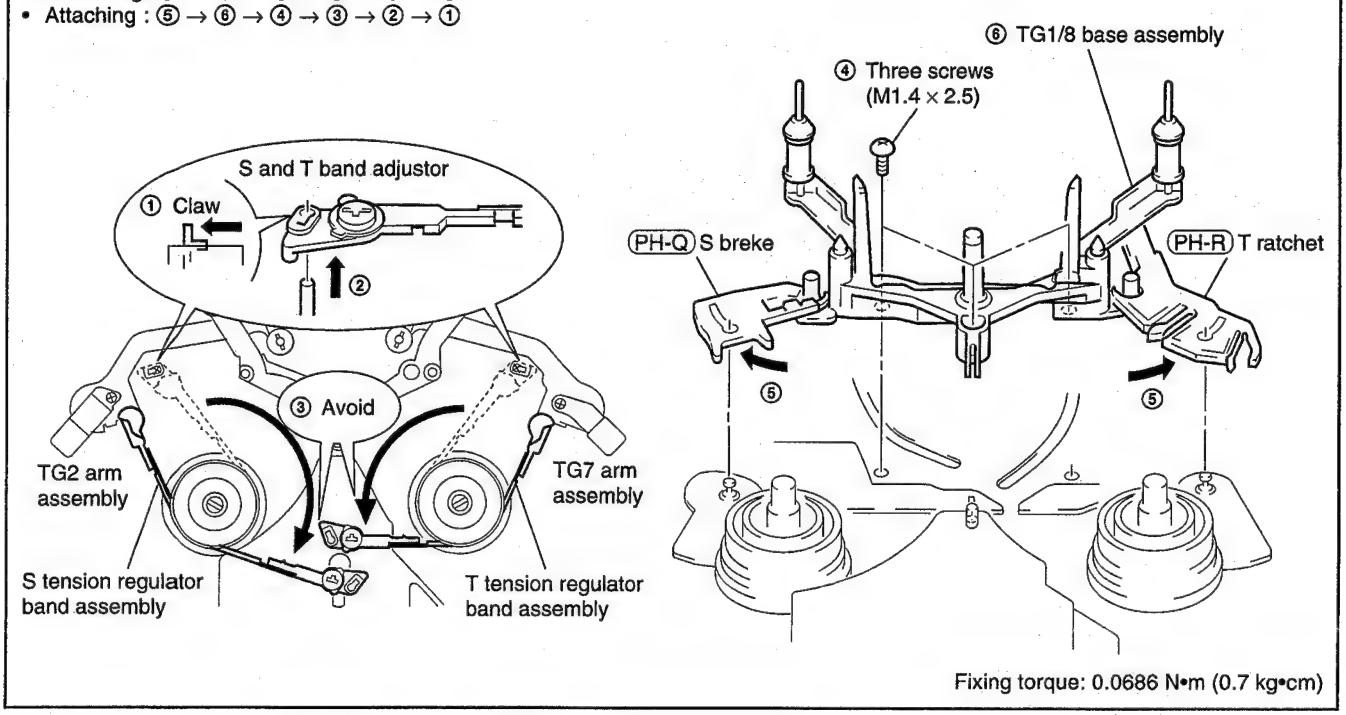
5-17. TG1/8 BASE ASSEMBLY, S BRAKE AND T RATCHET

1. Removing

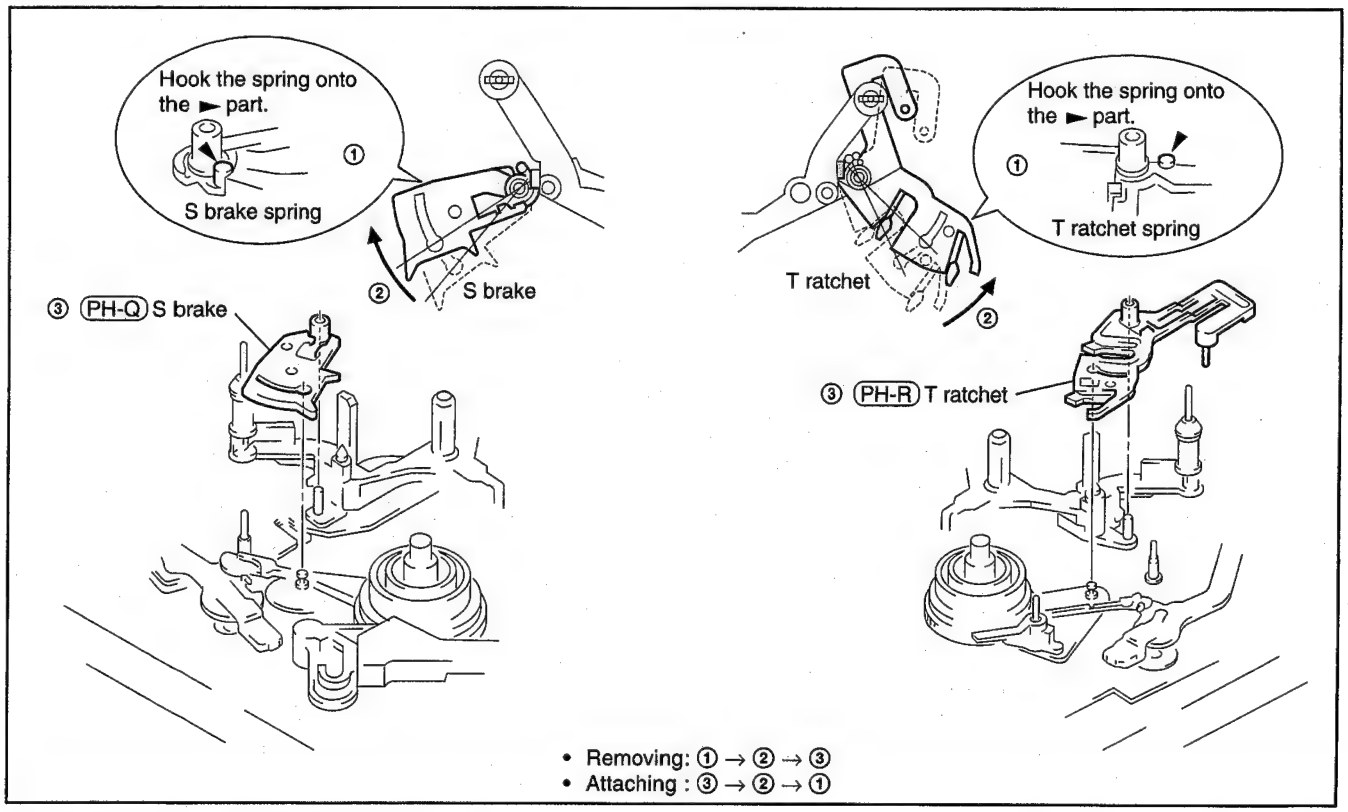
①. Set the (LOADING) / (L cassette) positions. (Refer to pages 5-2 to 5-3)

②. TG1/8 base assembly.

- Removing: ① → ② → ③ → ④ → ⑤ → ⑥
- Attaching : ⑤ → ⑥ → ④ → ③ → ② → ①



③. S brake and T ratchet.



2. Attaching

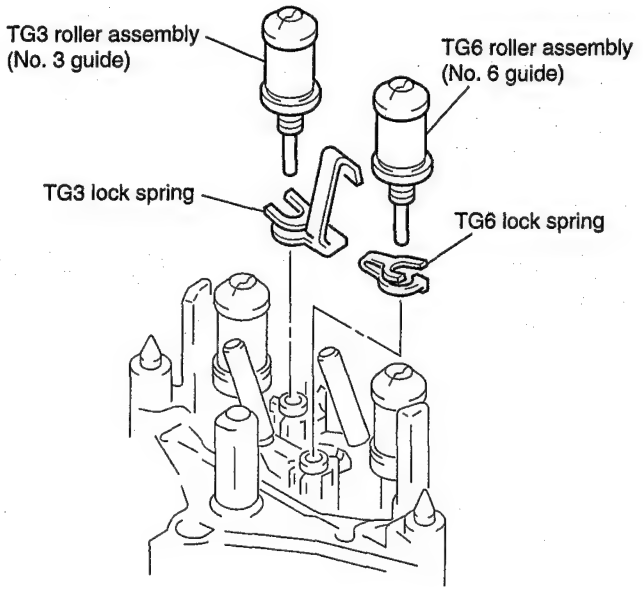
❶. Attach the parts in the order of ① → ③ → ②.

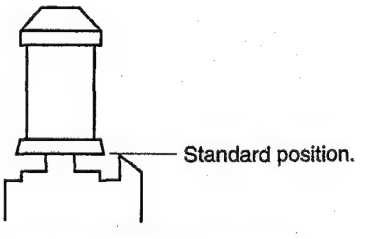
❷. Adjust them according to the flowchart (START-2) on page 5-43.

5-18. TG3/6 ROLLER ASSEMBLY AND TG3/6 LOCK SPRING

- **Removing/Attaching**

Note: (UNLOADING) position. (Refer to page 5-3)





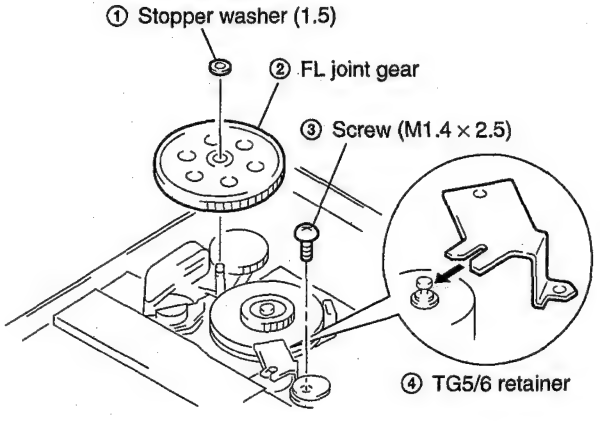
Preset the height as shown in the figure.

Note: After attaching each part, adjust them according to the flowchart (START-3) on page 5-43.

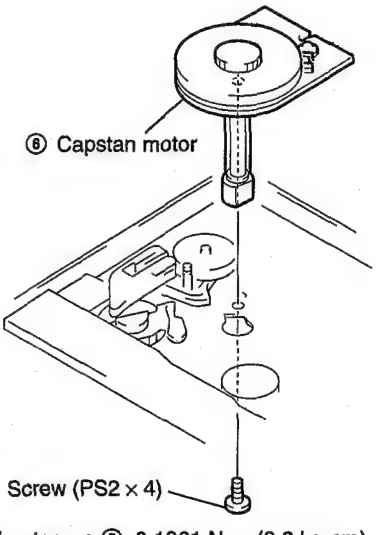
5-19. FL JOINT GEAR, TG5/6 RETAINER AND CAPSTAN MOTOR

- **Removing/Attaching**

- Removing: ① → ② → ③ → ④ → ⑤ → ⑥
- Attaching : ⑥ → ⑤ → ④ → ③ → ② → ①



Fixing torque ③: 0.0686 N•m (0.7 kg•cm)



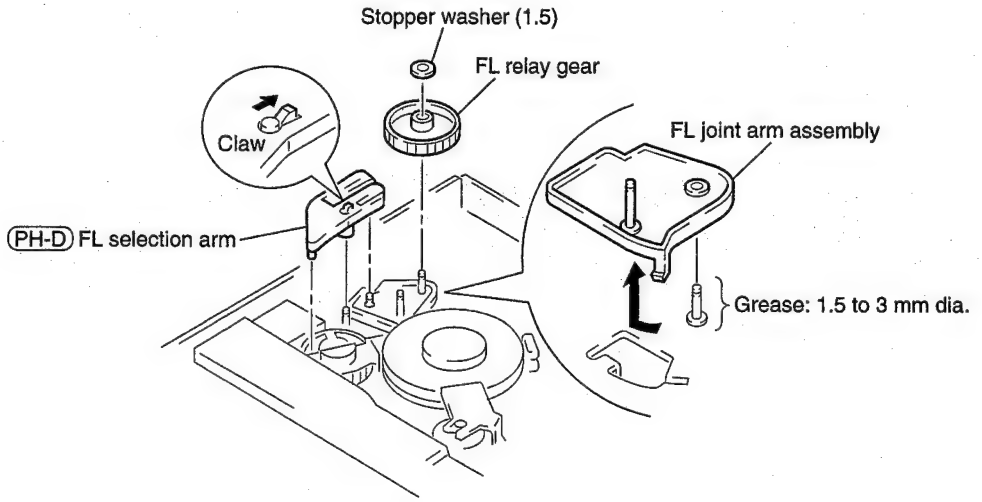
Fixing torque ⑤: 0.1961 N•m (2.0 kg•cm)

(PH-A) : Page 5-6
(PH-D), (PH-G) : Page 5-7

5-20. FL SELECTION ARM, FL RELAY GEAR AND FL JOINT ARM ASSEMBLY

- **Removing/Attaching**

Note: First, remove the FL joint gear. (Refer to 5-19)

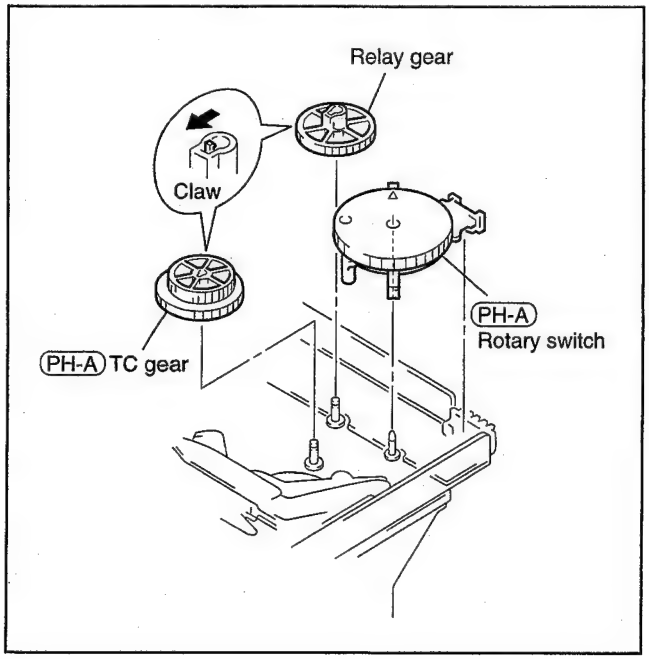


5-21. ROTARY SWITCH, TC GEAR AND RELAY GEAR

1. Removing

①. Set the (UNLOADING) position. (Refer to page 5-3)

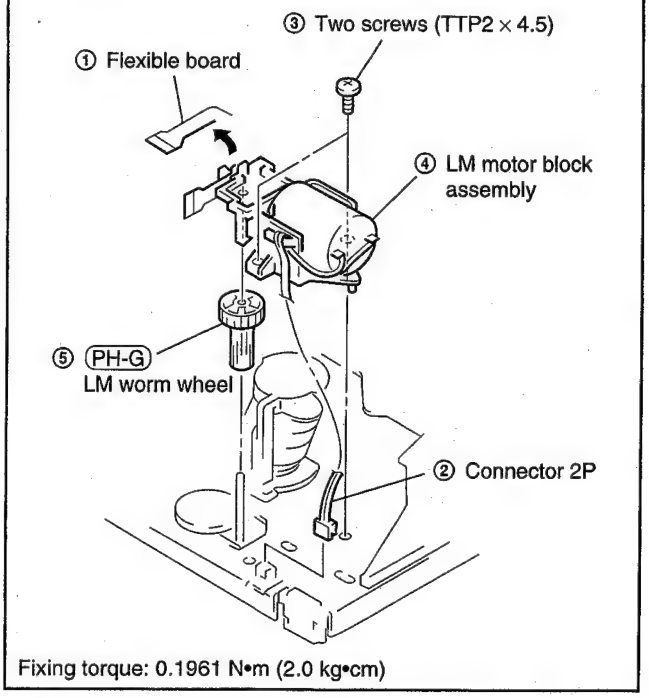
②. Rotary switch, TC gear and relay gear.



2. Attaching

❶. Remove the LM motor block assembly and LM worm wheel. (To synchronize phase of the pinch driving system (front side) and the loading driving system (back side))

- Removing: ① → ② → ③ → ④ → ⑤
- Attaching : ⑤ → ④ → ③ → ② → ①

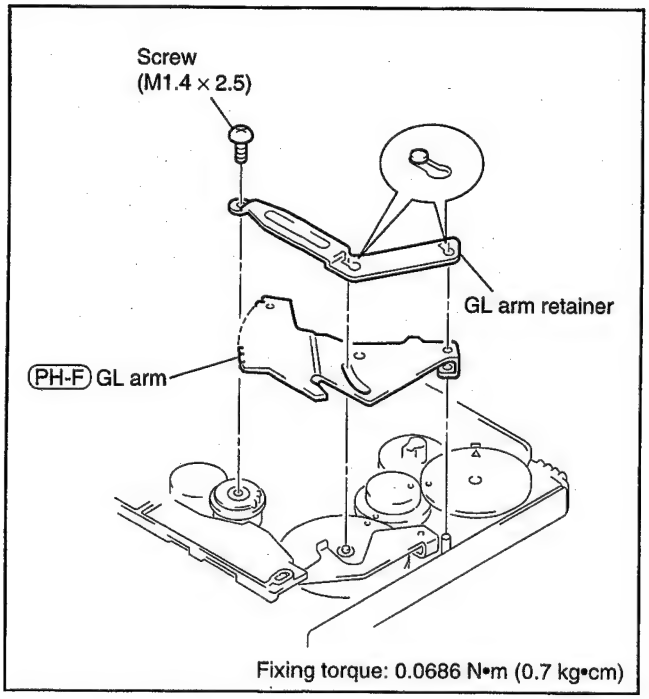


❷. Attach the TC gear, relay gear and rotary switch.
❸. Attach the LM worm wheel and LM motor block assembly.

PH-B : Page 5-6 PH-R : Page 5-10
PH-D , PH-E , PH-F : Page 5-7 PH-V : Page 5-11

5-22. GL ARM RETAINER AND GL ARM

- **Removing/Attaching** (UNLOADING position. (Refer to page 5-3))



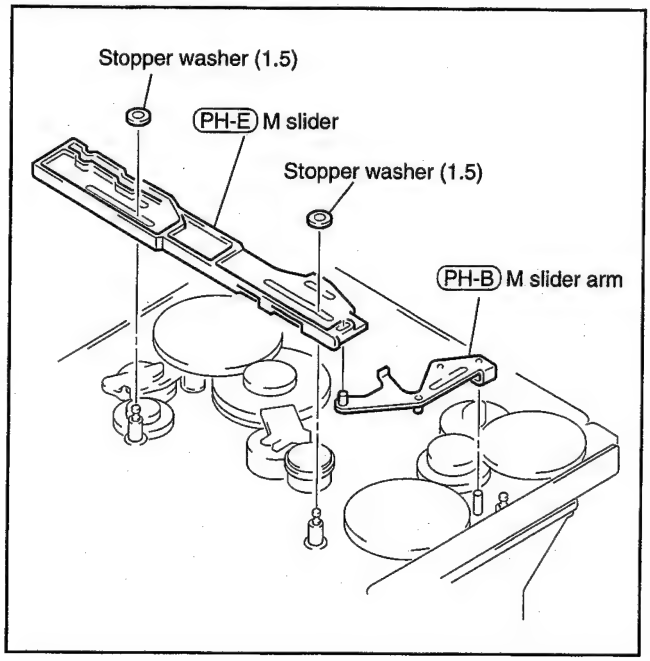
5-23. M SLIDER AND M SLIDER ARM

1. Removing

①. Set the UNLOADING position. (Refer to page 5-3)

②. GL arm retainer and GL arm. (Refer to 5-22)

③. M slider and M slider arm.



2. Attaching

- Attach the parts in the order of ① → ③ → ②.

5-24. TG7 SELECTION ARM, TG7 CAM GEAR AND T CAM GEAR

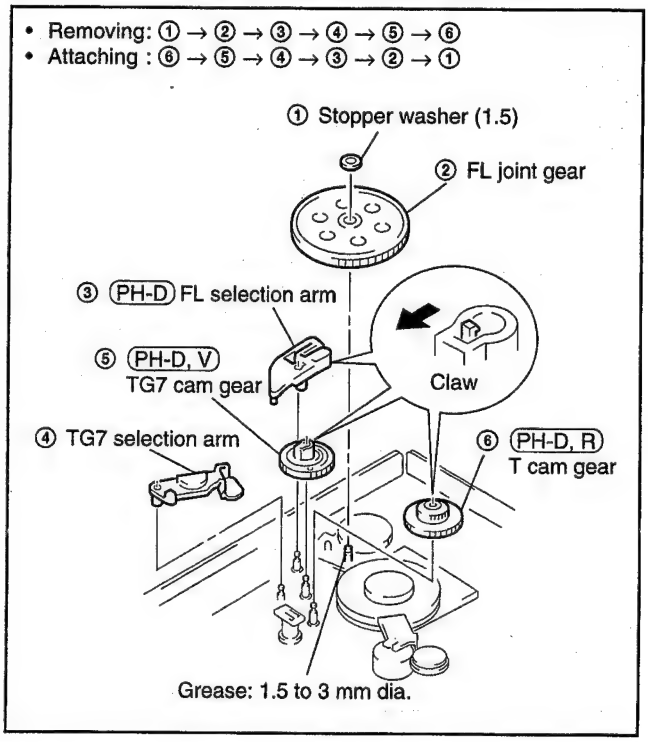
1. Removing

①. Set the UNLOADING position. (Refer to page 5-3)

②. GL arm retainer and GL arm. (Refer to 5-22)

③. M slider and M slider arm. (Refer to 5-23)

④. TG7 selection arm, TG7 cam gear and T cam gear.



2. Attaching

❶. Attach the parts in the order of ① → ④ → ③ → ②.

Cam groove on the T cam gear.

Apply the grease (3 mm dia) to of cam groove (part).

T cam gear
(T ratchet driving side)

(PH-A) : Page 5-6
(PH-G) : Page 5-7
(PH-T), (PH-U) : Page 5-11

5-25. MAIN CAM, TG2 SL ARM ASSEMBLY AND TENSION COIL SPRING (TG2 SL)

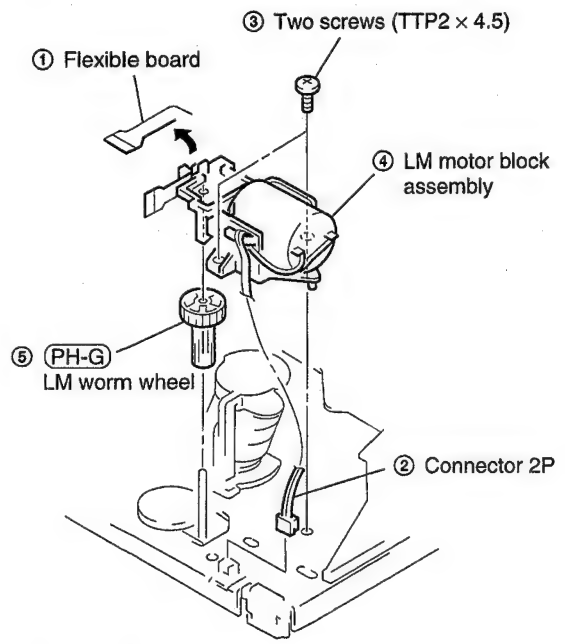
The two grooves on one side of the main cam drive the TG2 selection arm and the TG2 load arm assembly.
Since it is difficult to attach the main cam, fix the TG2 selection arm and the TG2 load arm assembly with the main cam's phase adjusted correctly (Nearly unloading position (See 3-1. Phase Adjustment Ⓐ: page 5-6)), so that later mounting work can be performed smoothly. If fixed parts are shifted, follow "3-3. Phase Adjustment Ⓣ, Ⓤ: page 5-11".

1. Removing

①. Set the (UNLOADING) position. (Refer to page 5-3)

②. LM motor block assembly and LM worm wheel.

- Removing: ① → ② → ③ → ④ → ⑤
- Attaching : ⑤ → ④ → ③ → ② → ①

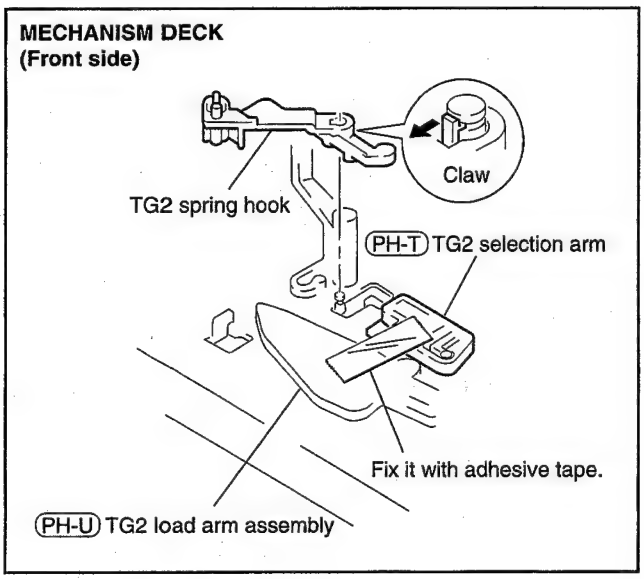


Fixing torque: 0.1961 N•m (2.0 kg•cm)

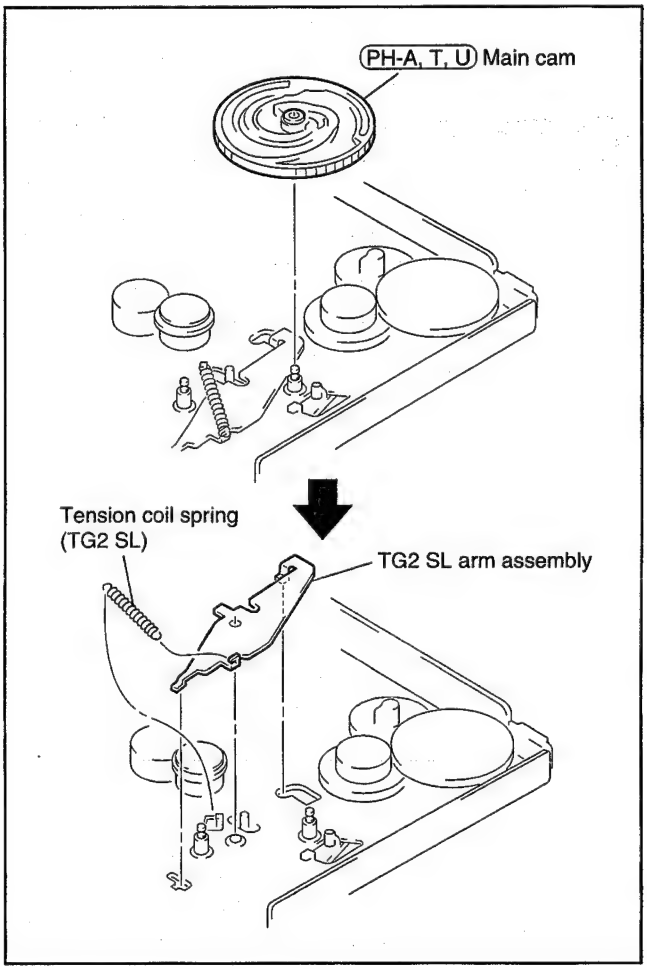
③. GL arm retainer and GL arm. (Refer to 5-22)

④. M slider and M slider arm. (Refer to 5-23)

⑤. TG2 spring hook.



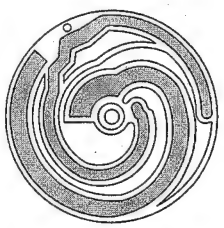
⑥. Main cam, TG2 SL arm assembly and tension coil spring (TG2 SL).



2. Attaching

❶. Attach the parts in the order of ① → ⑥ → ⑤ → ④ → ③ → ②.

❷. Adjust them according to the flowchart (START-2) on page 5-43.



Main cam (rear side)

Cam groove on the main cam.

Apply the grease (12 mm dia.) to each two of cam groove (part).

(PH-A) : Page 5-6
(PH-F), (PH-G) : Page 5-7

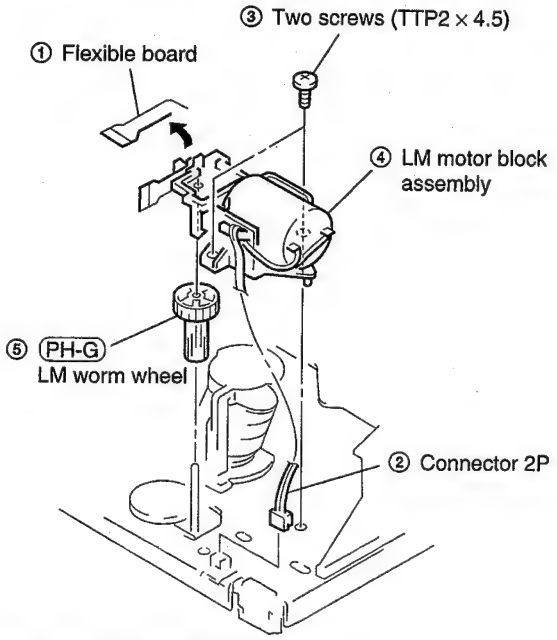
5-26. TG3/4 ARM BLOCK ASSEMBLY (TG3/4 ARM ASSEMBLY, TG3/4 LIMITER SPRING AND TG3/4 GEAR), TG3/4 BASE BLOCK ASSEMBLY (TG3/4 BASE ASSEMBLY)

1. Removing

①. Set the (UNLOADING) position. (Refer to page 5-3)

②. LM motor block assembly and LM worm wheel.

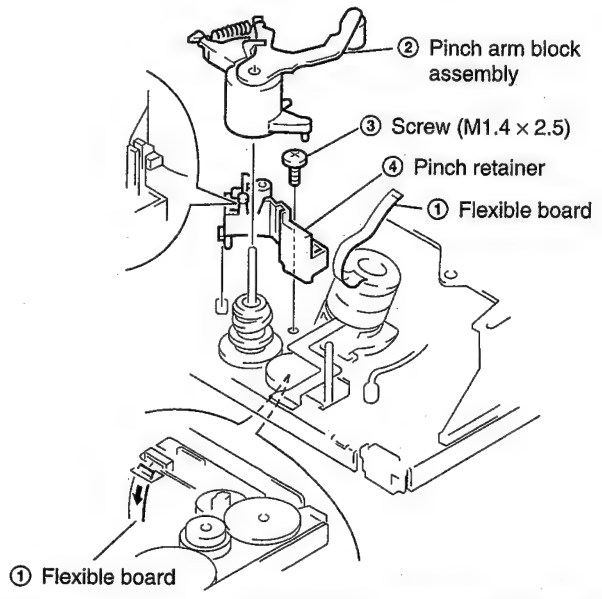
- Removing: ① → ② → ③ → ④ → ⑤
- Attaching : ⑤ → ④ → ③ → ② → ①



Fixing torque: 0.1961 N•m (2.0 kg•cm)

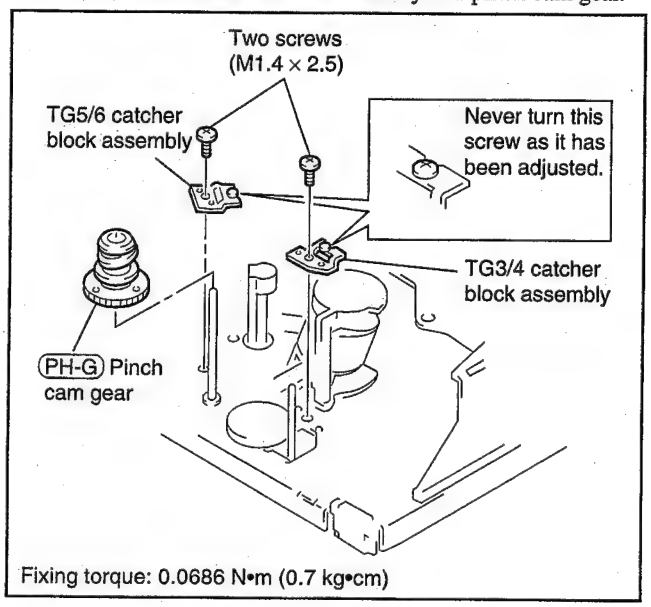
③. Pinch arm block assembly and pinch retainer.

- Removing: ① → ② → ③ → ④
- Attaching : ④ → ③ → (PH-G) → ② → ①



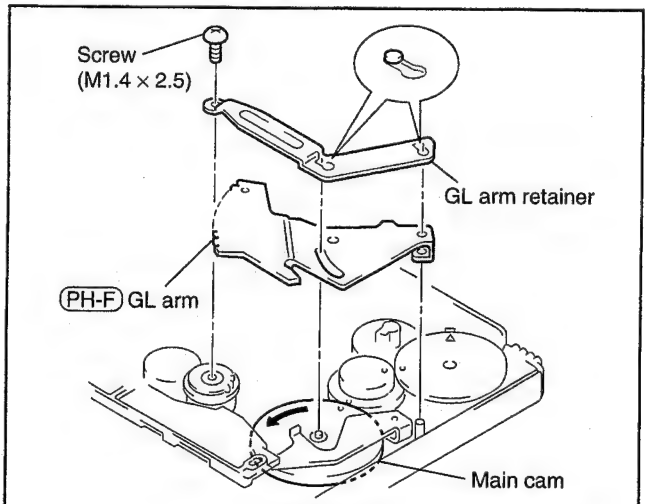
Fixing torque: 0.0686 N•m (0.7 kg•cm)

④. TG3/4, TG5/6 catcher block assembly and pinch cam gear.



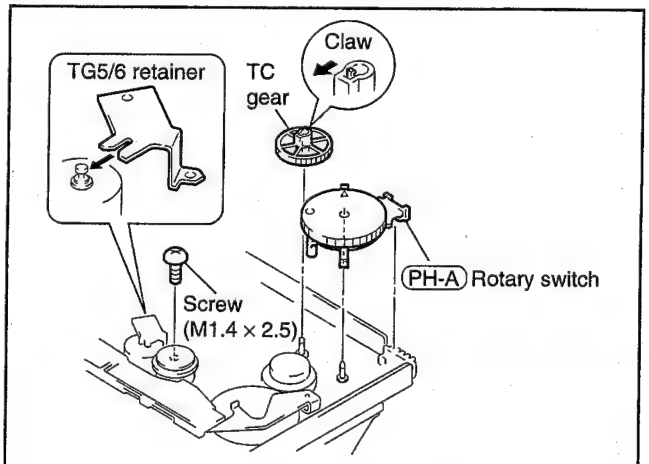
Fixing torque: 0.0686 N•m (0.7 kg•cm)

⑤. GL arm retainer and GL arm.



Fixing torque: 0.0686 N•m (0.7 kg•cm)

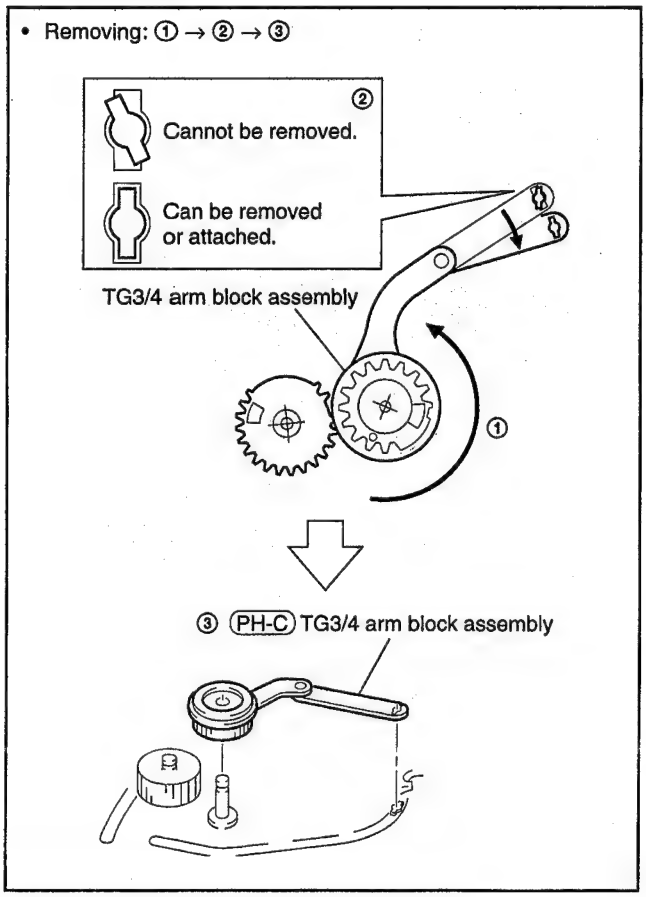
⑥. Rotary switch, TC gear and TG5/6 retainer.



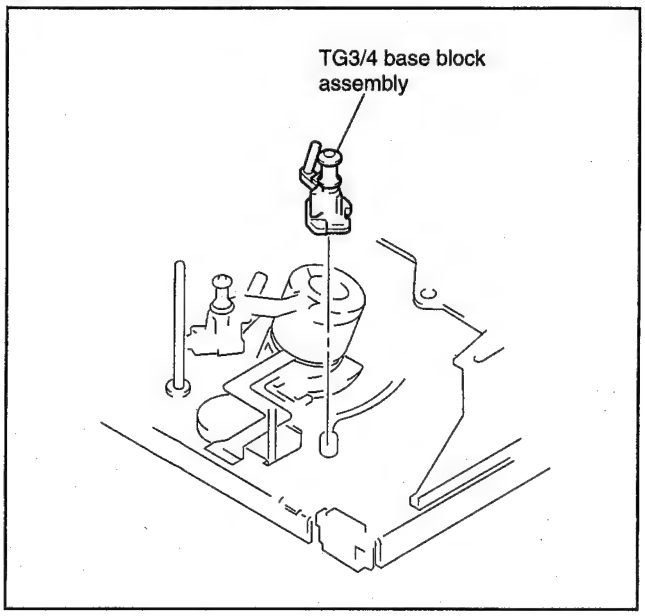
Fixing torque: 0.0686 N•m (0.7 kg•cm)

⑦. Set the (LOADING) position. (Refer to page 5-3)

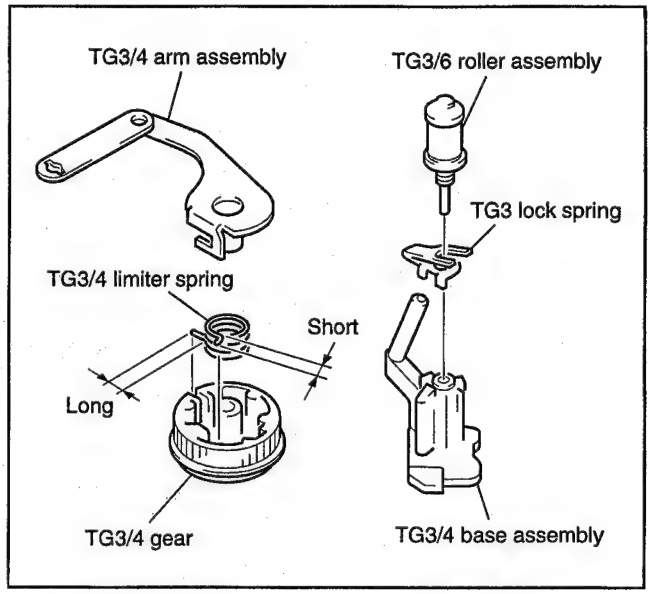
⑧. TG3/4 arm block assembly.



⑨. TG3/4 base block assembly.

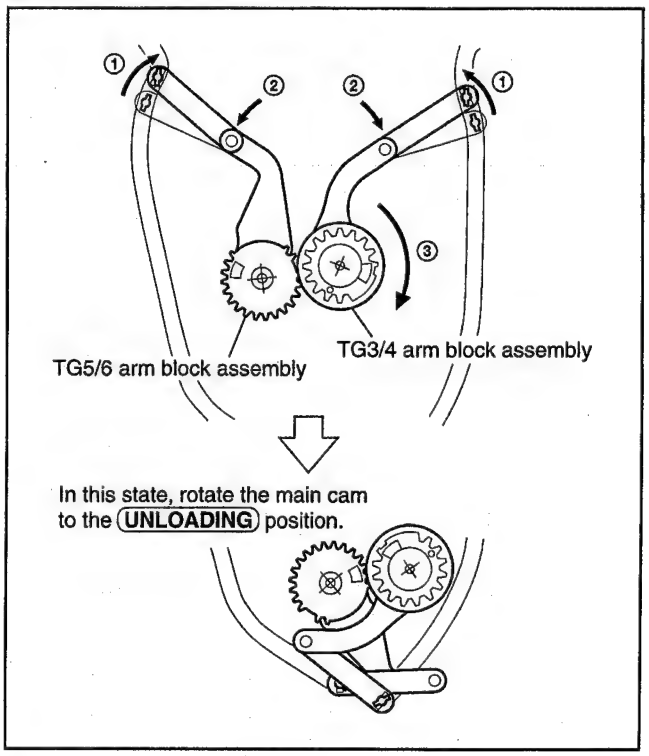


⑩. TG3/4 arm assembly, TG3/4 limiter spring, TG3/4 gear, TG3/6 roller assembly, TG3 lock spring and TG3/4 base assembly.



2. Attaching

❶. Set the (LOADING) position. (Refer to page 5-3)
❷. TG3/4 arm assembly, TG3/4 limiter spring, TG3/4 gear, TG3/6 roller assembly, TG3 lock spring and TG3/4 base assembly.
❸. TG3/4 base block assembly.
❹. TG3/4 arm block assembly.



❺. Attach the parts in the order of ⑥ → ⑤ → ④ → ③ → ②.
❻. Adjust them according to the flowchart (START-3) on page 5-43.

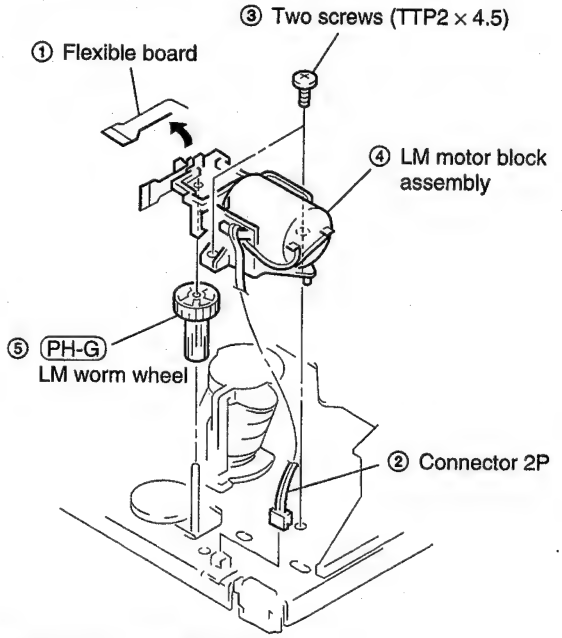
5-27. TG5/6 ARM BLOCK ASSEMBLY (TG5/6 ARM ASSEMBLY, TG5/6 LIMITER SPRING AND TG5/6 GEAR), TG5/6 BASE BLOCK ASSEMBLY (TG5/6 BASE ASSEMBLY)

1. Removing

①. Set the (UNLOADING) position. (Refer to page 5-3)

②. LM motor block assembly and LM worm wheel.

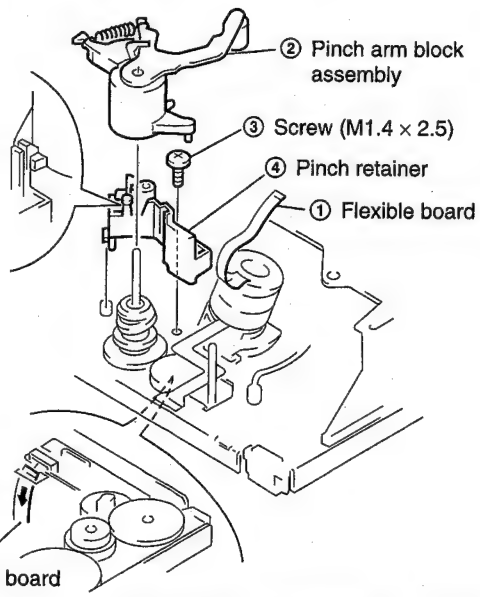
- Removing: ① → ② → ③ → ④ → ⑤
- Attaching : ⑤ → ④ → ③ → ② → ①



Fixing torque: 0.1961 N•m (2.0 kg•cm)

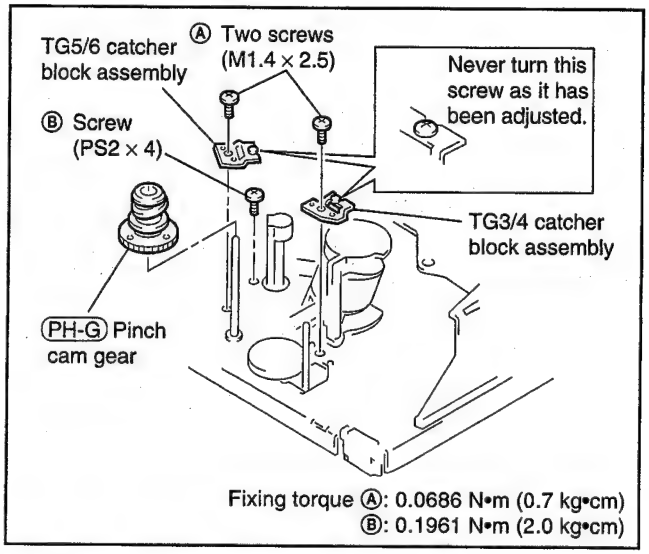
③. Pinch arm block assembly and pinch retainer.

- Removing: ① → ② → ③ → ④
- Attaching : ④ → ③ → (PH-G) → ② → ①



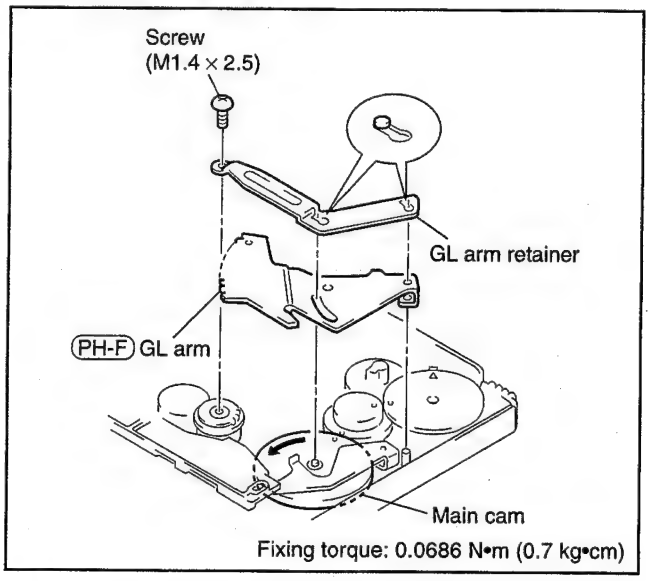
Fixing torque: 0.0686 N•m (0.7 kg•cm)

④. TG3/4, TG5/6 catcher block assembly, screw of capstan motor and pinch cam gear.



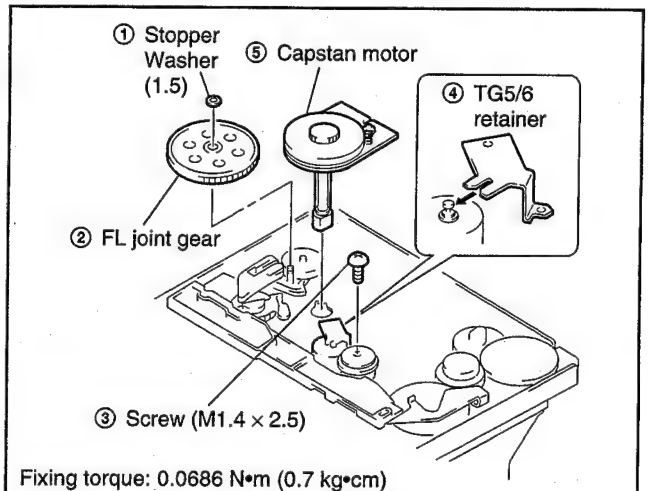
Fixing torque Ⓐ: 0.0686 N•m (0.7 kg•cm)
Ⓑ: 0.1961 N•m (2.0 kg•cm)

⑤. GL arm retainer and GL arm.



Fixing torque: 0.0686 N•m (0.7 kg•cm)

⑥. FL joint gear, capstan motor and TG5/6 retainer.

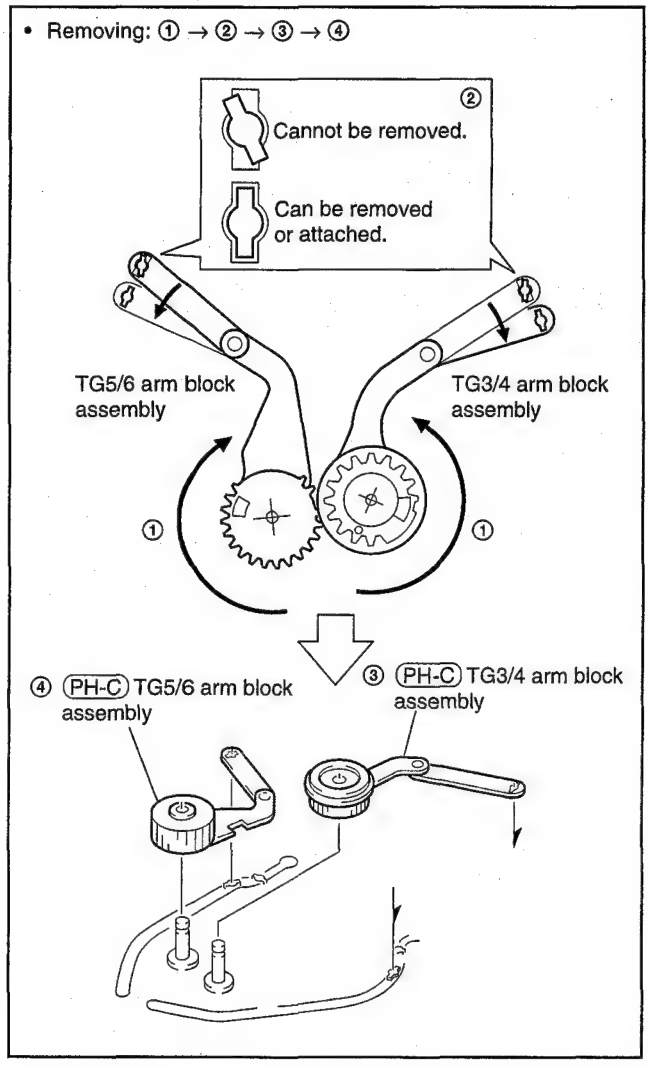


Fixing torque: 0.0686 N•m (0.7 kg•cm)

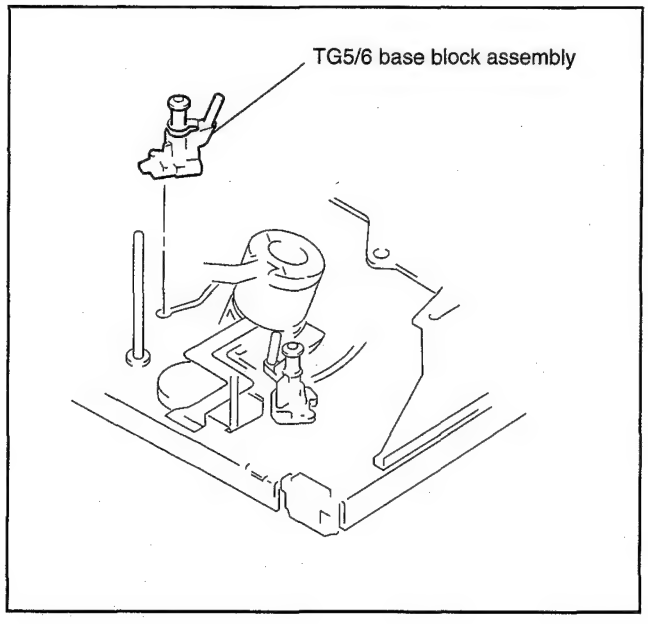
- Removing: ① → ② → ③ → ④ → ⑤
- Attaching : ⑤ → ④ → ③ → ② → ①

⑦. Set the LOADING position. (Refer to page 5-3)

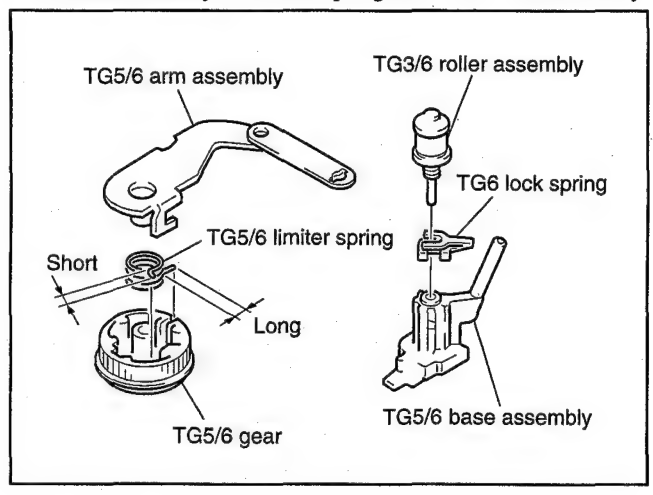
⑧. TG3/4 arm block assembly and TG5/6 arm block assembly.



⑨. TG5/6 base block assembly.

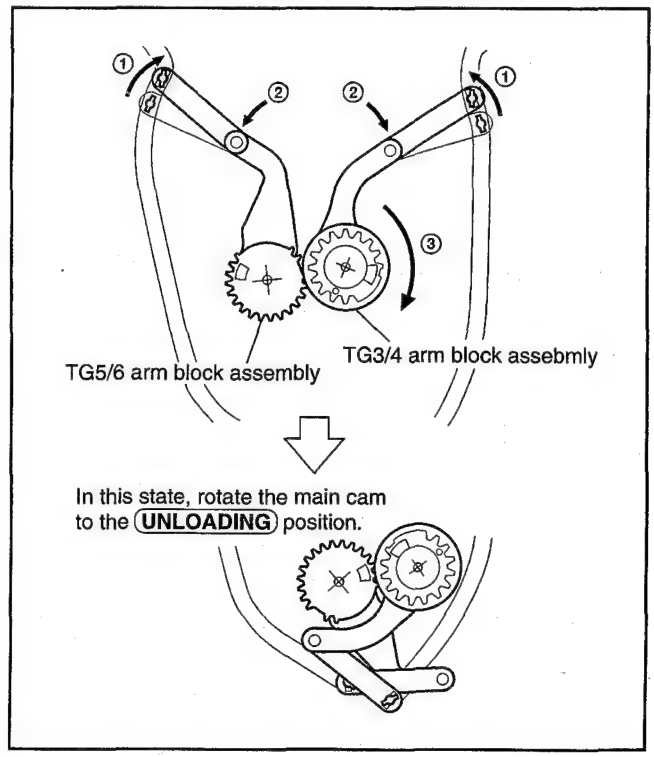


⑩. TG5/6 arm assembly, TG5/6 limiter spring, TG5/6 gear, TG3/6 roller assembly, TG6 lock spring and TG5/6 base assembly.



2. Attaching

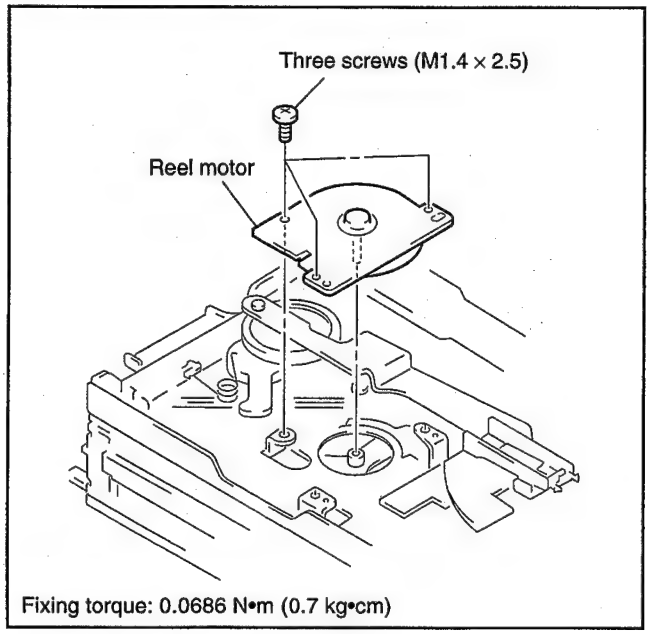
❶. Set the LOADING position. (Refer to page 5-3)
❷. TG5/6 arm assembly, TG5/6 limiter spring, TG5/6 gear, TG3/6 roller assembly, TG6 lock spring and TG5/6 base assembly.
❸. TG5/6 base block assembly.
❹. TG3/4 arm block assembly and TG5/6 arm block assembly.



❺. Attach the parts in the order of ⑥ → ⑤ → ④ → ③ → ②.
❻. Adjust them according to the flowchart (START-3) on page 5-43.

5-28. REEL MOTOR

• **Removing/Attaching**



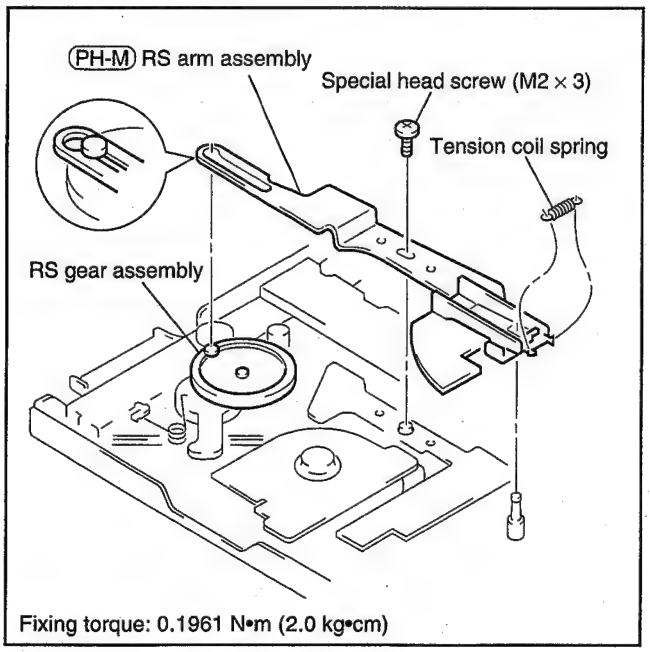
Fixing torque: 0.0686 N•m (0.7 kg•cm)

5-29. RS ARM ASSEMBLY

1. Removing

①. Set the (S/L cassette) position. (Refer to page 5-2)

②. RS arm assembly.



Fixing torque: 0.1961 N•m (2.0 kg•cm)

2. Attaching

• Attach the parts in the order of ① → ②.

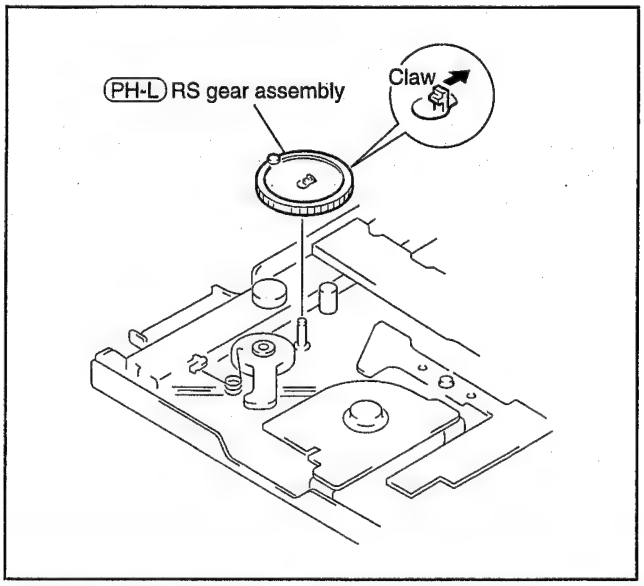
5-30. RS GEAR ASSEMBLY, MIC PRESS SPRING AND MIC LEVER

1. Removing

①. Set the (S/L cassette) position. (Refer to page 5-2)

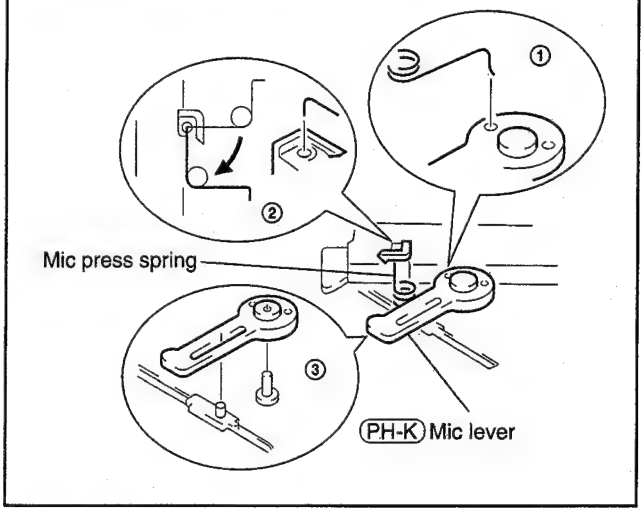
②. RS arm assembly. (Refer to 5-29)

③. RS gear assembly.



④. Mic press spring and Mic lever.

• Removing: ① → ② → ③
• Attaching : ③ → ② → ①



2. Attaching

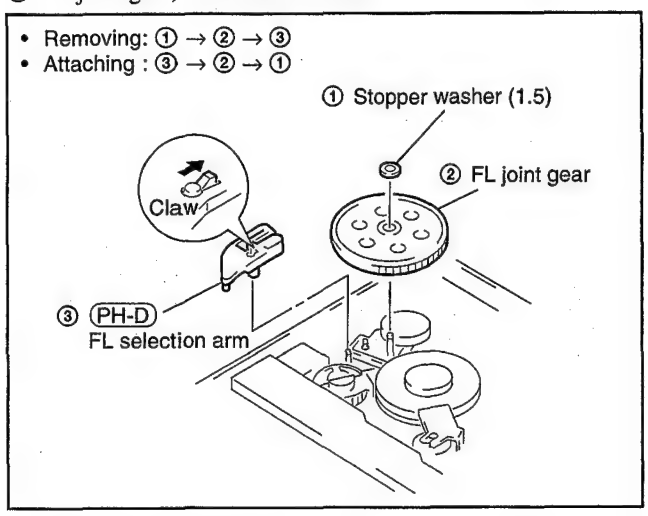
• Attach the parts in the order of ① → ④ → ③ → ②.

(PH-D) : Page 5-7
(PH-J) : Page 5-8
(PH-K) : Page 5-9

5-31. RACK JOINT GEAR, RACK HOLDER, MIC HOLDER, RACK (LC) AND RACK (SC)

1. Removing

①. FL joint gear, TG7 selection arm.

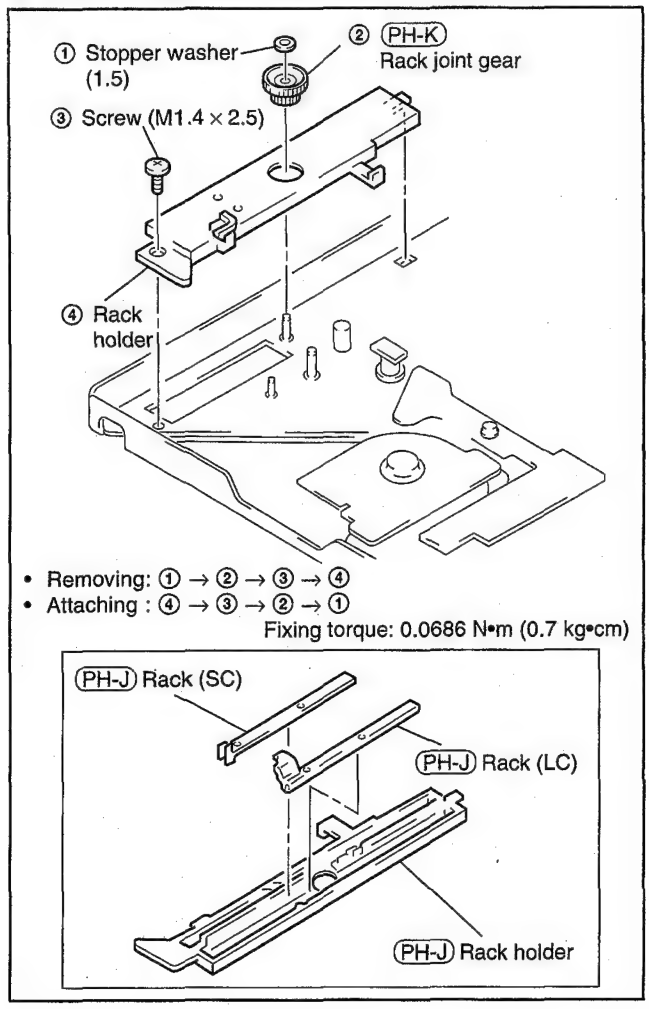


②. Set the **(S/L cassette)** position. (Refer to page 5-2)

③. RS arm assembly. (Refer to 5-29)

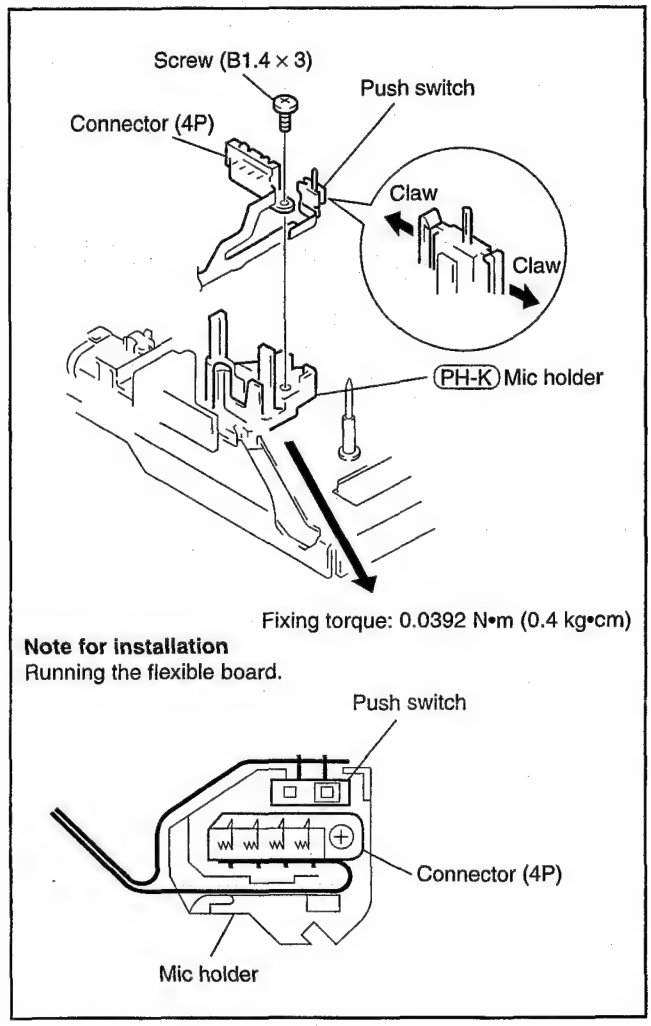
④. RS gear assembly, Mic press spring and Mic lever. (Refer to 5-30)

⑤. Rack joint gear, rack holder, rack (LC) and rack (SC).



⑥. FL block assembly. (Refer to page 5-2)

⑦. Push switch, Connector (4P), Mic holder.



2. Attaching

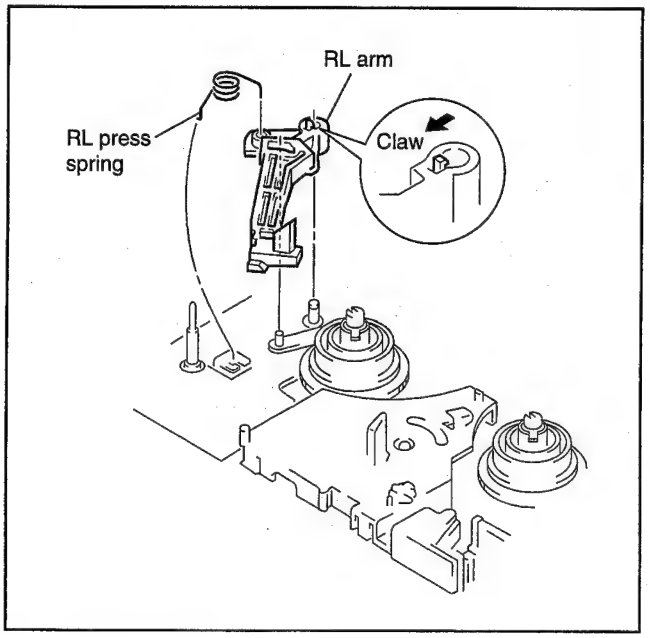
• Attach the parts in the order of ② → ⑦ → ⑥ → ⑤ → ④ → ③ → ①.

5-32. PLATE LINK ASSEMBLY

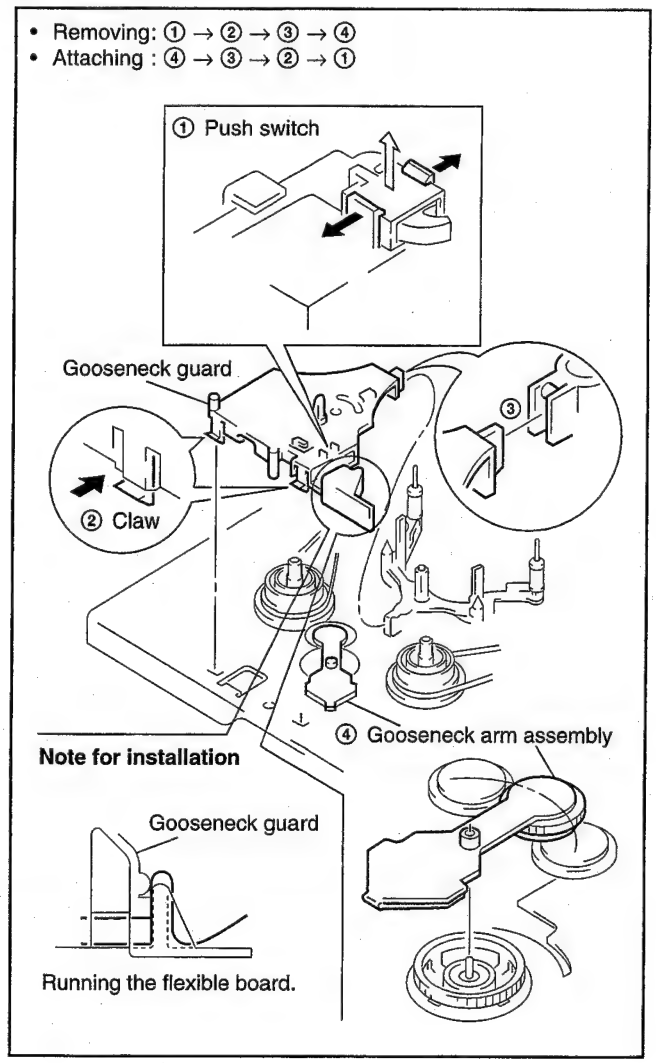
1. Removing

①. Set the (L cassette) position. (Refer to page 5-2)

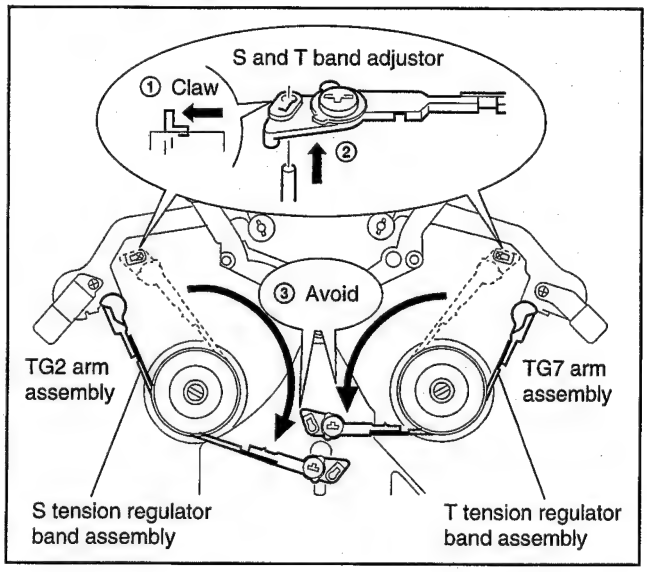
②. RL arm.



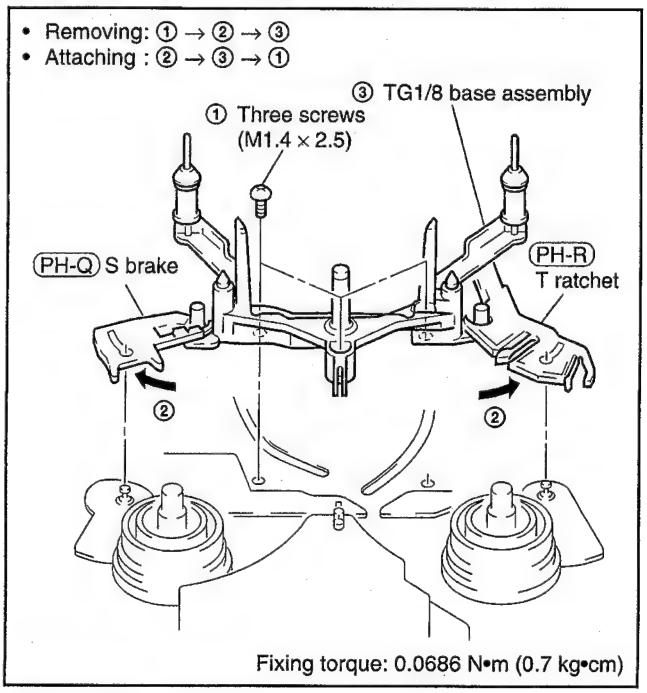
③. Gooseneck guard.



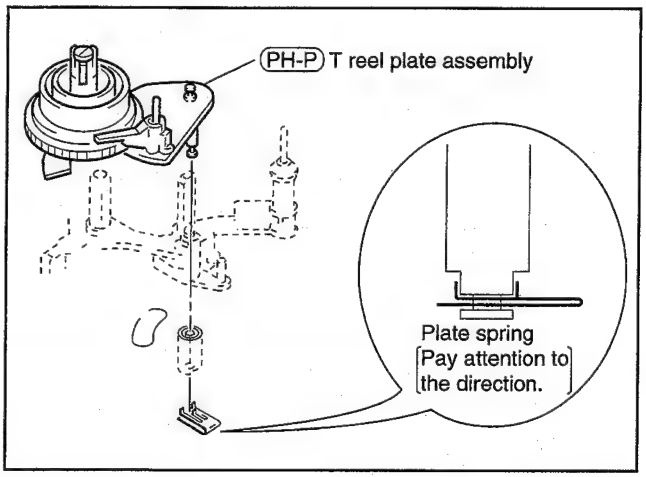
④. S and T band adjustor.



⑤. TG1/8 base assembly. (S brake and T ratchet)

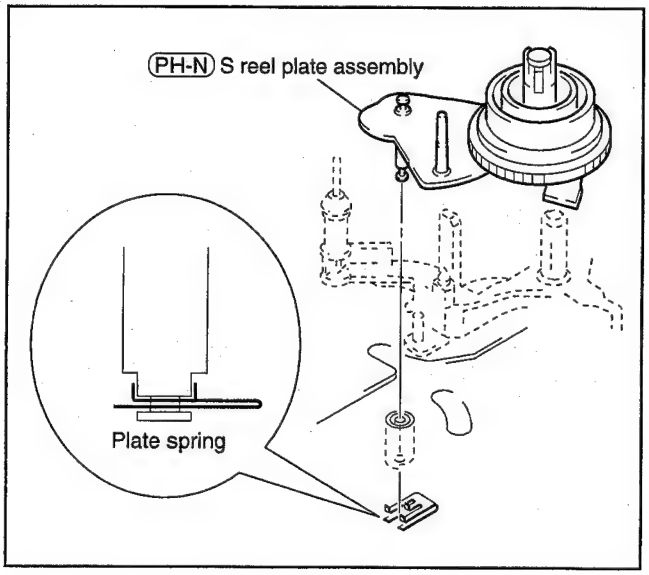


⑥. T reel plate assembly.



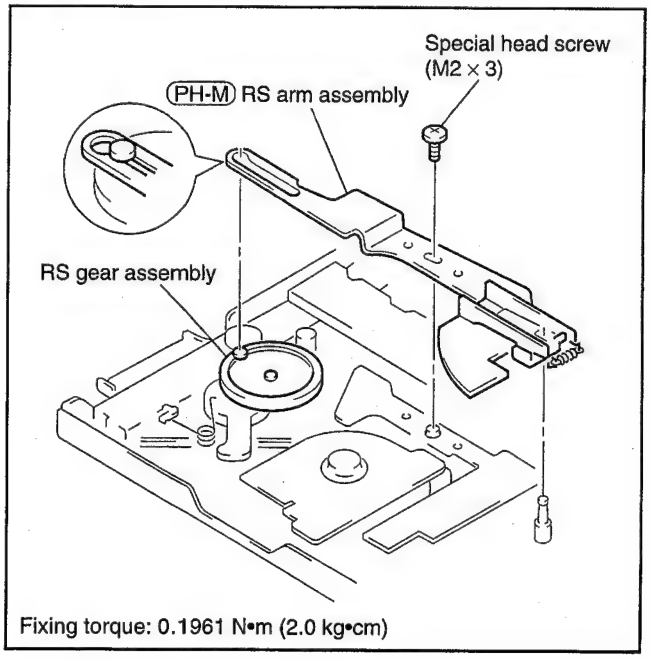
(PH-H) : Page 5-8
(PH-M) : Page 5-9
(PH-N) : Page 5-10

⑦. S reel plate assembly.

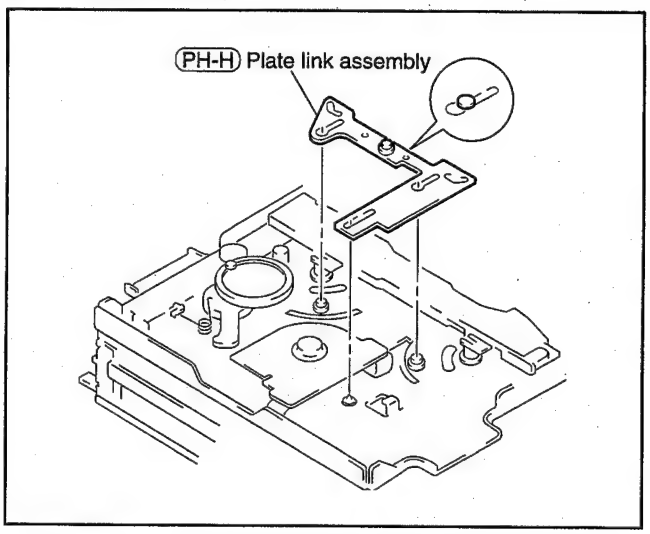


⑧. Set the (S/L cassette) position. (Refer to page 5-2)

⑨. RS arm assembly.



⑩. Plate link assembly.



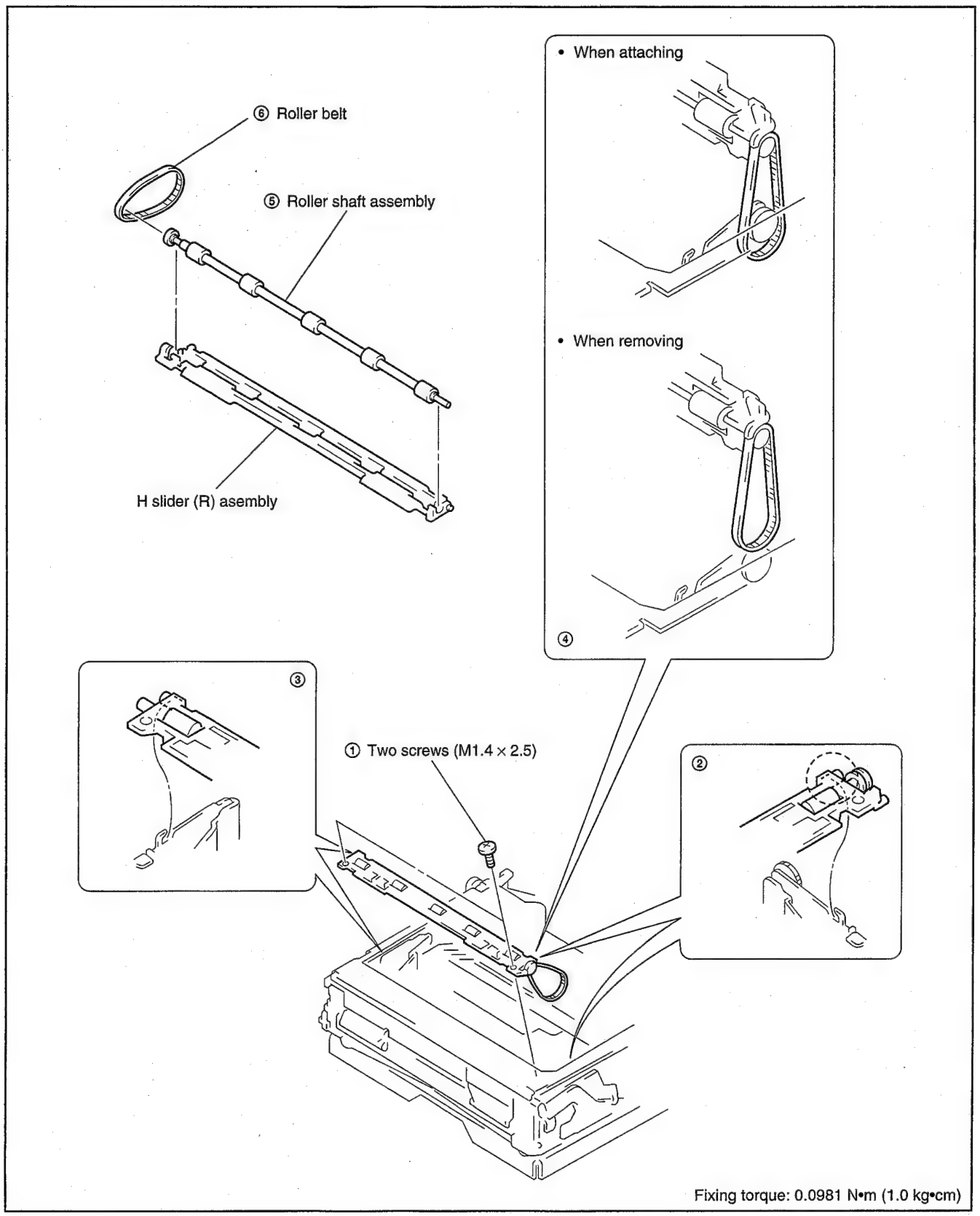
2. Attaching

❶. Attach the parts in the order of ⑧ → ⑩ → ⑨ → ⑦ → ⑥ → ⑤ → ① → ④ → ③ → ②.

❷. Adjust them according to the flowchart (START-1) on page 5-43.

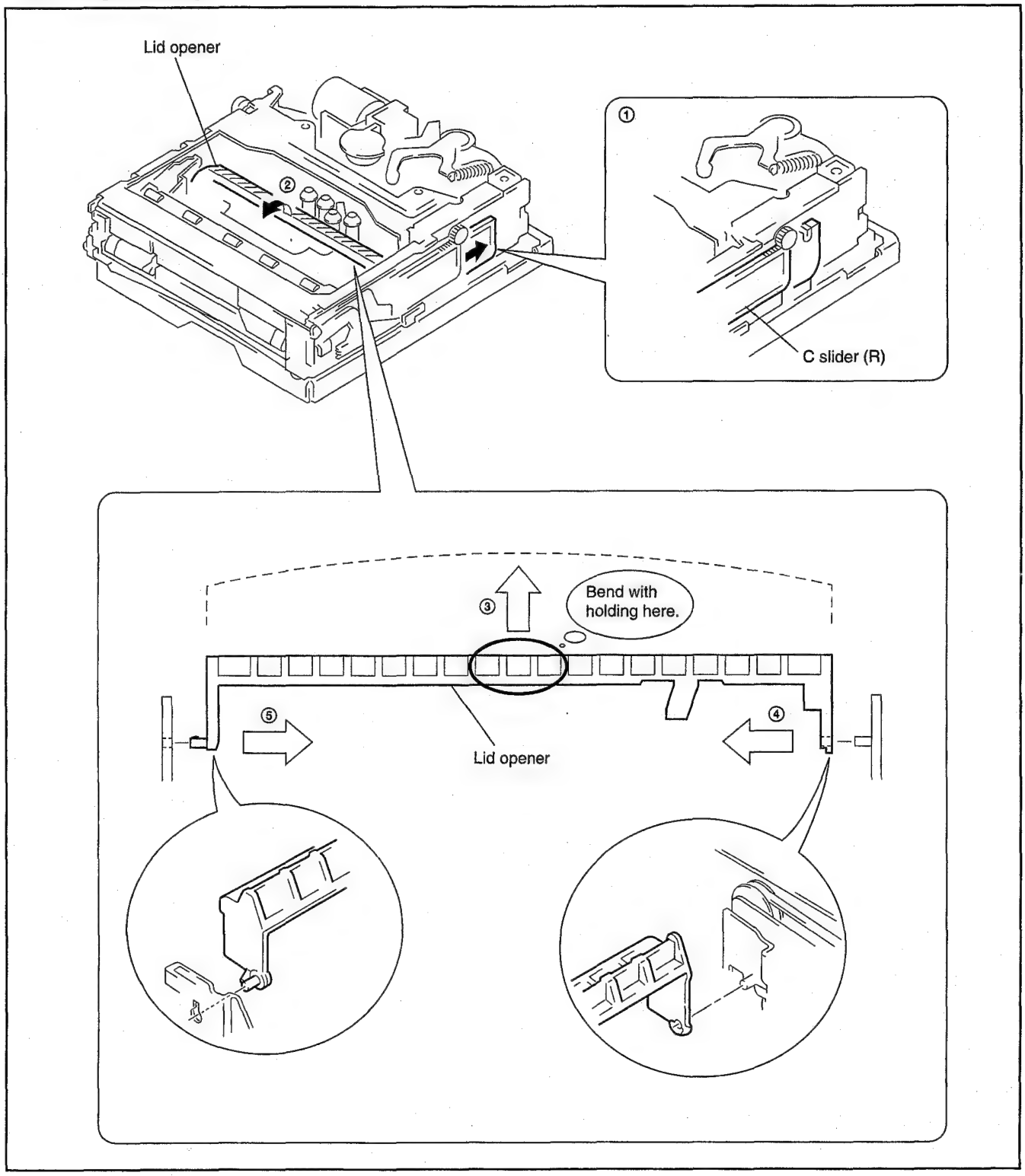
5-33. ROLLER SHAFT ASSEMBLY AND ROLLER BELT

- **Removing/Attaching**



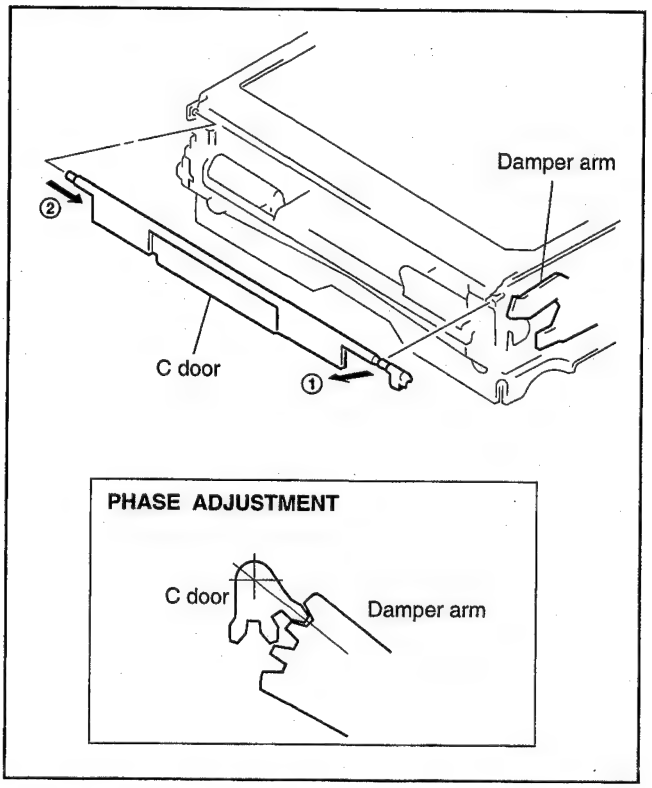
5-34. LID OPENER

- **Removing/Attaching**



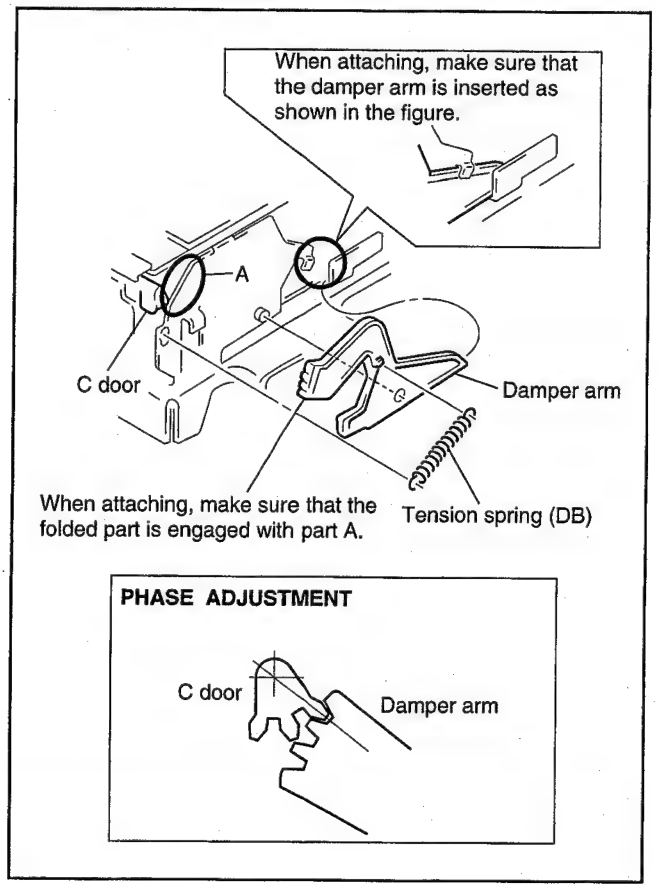
5-35. C DOOR

• **Removing/Attaching**



5-36. DAMPER ARM AND TENSION SPRING (DB)

• **Removing/Attaching**

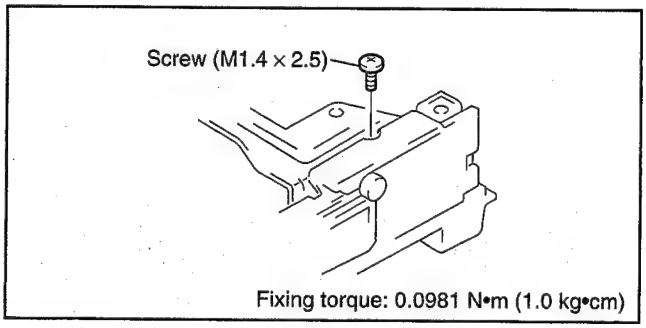


5-37. GEAR (A), GEAR (B) AND C WORM

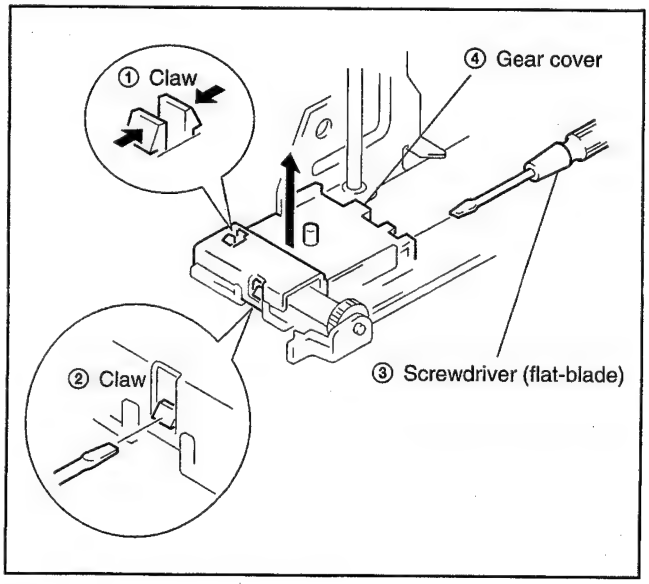
1. Removing

①. FL block assembly. (Refer to page 5-2)

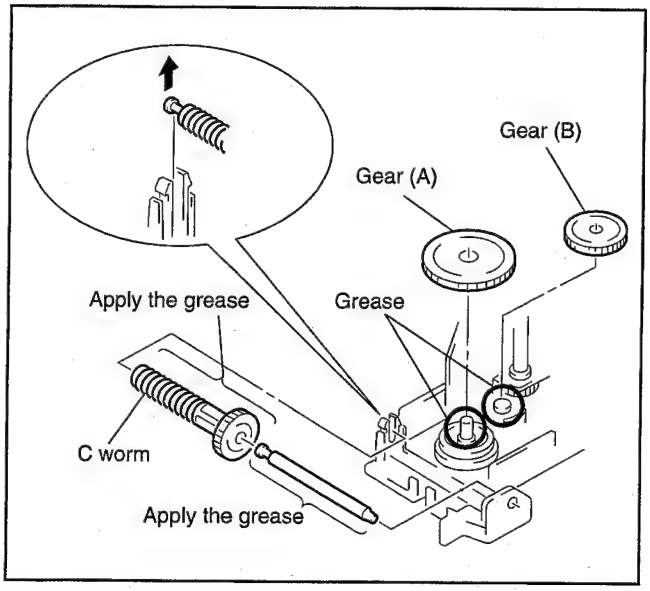
②. Screw. (M1.4 × 2.5)



③. Gear cover.



④. Gear (A), Gear (B) and C worm.

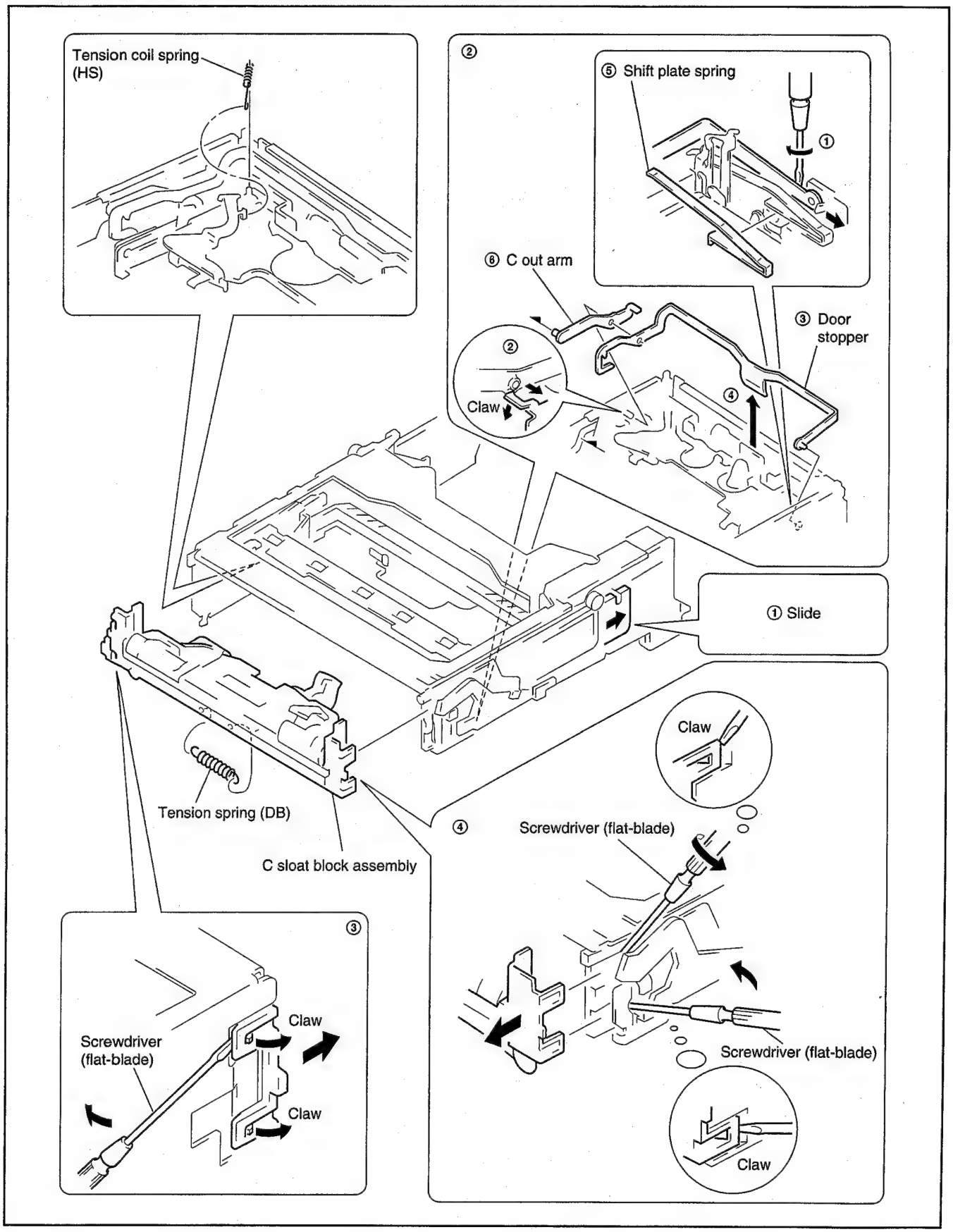


2. Attaching

• Attach the parts in the order of ④ → ③ → ② → ①.

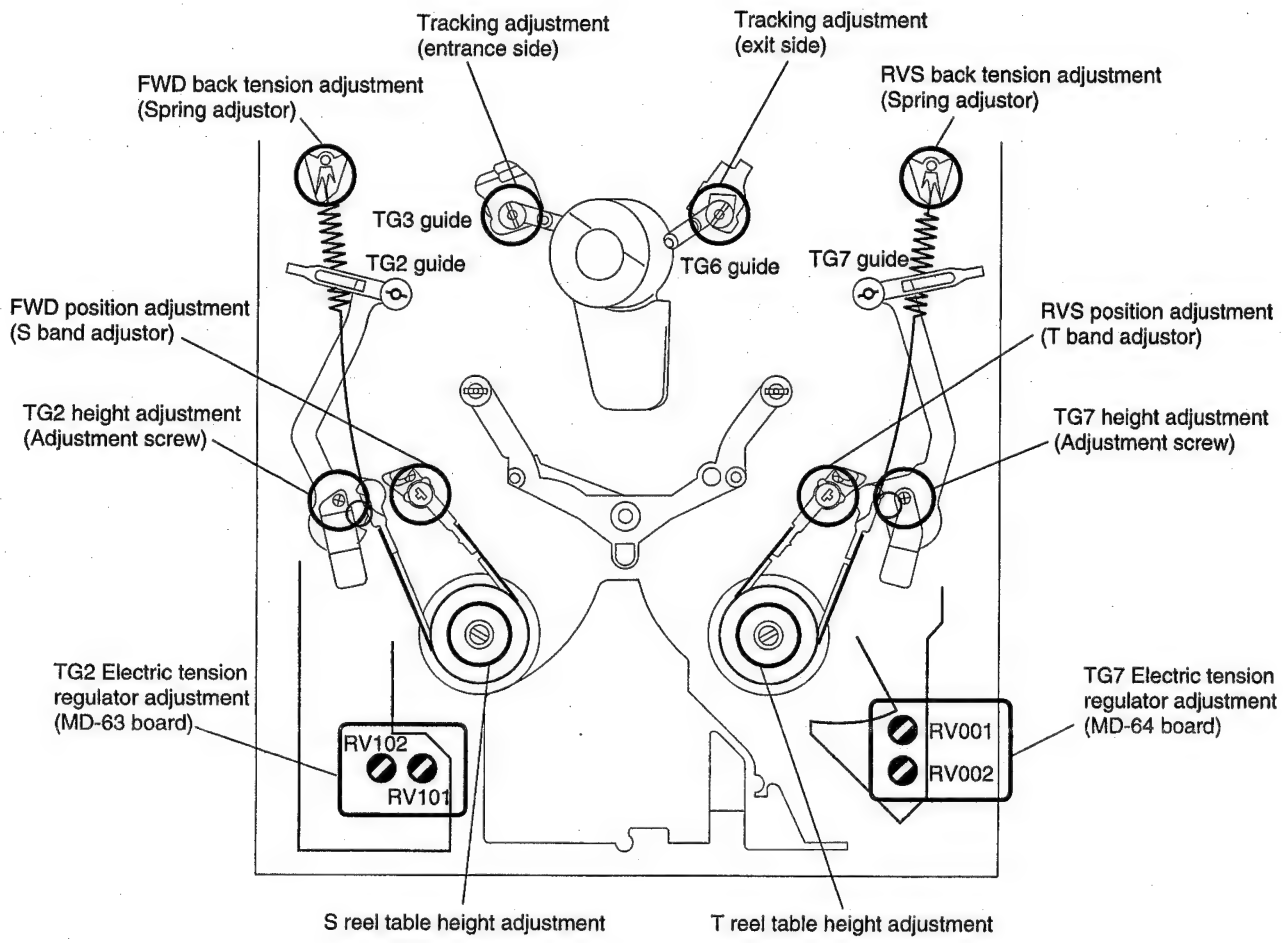
5-38. TENSION COIL SPRING (HS), TENSION SPRING (DB), SHIFT PLATE SPRING AND C SLOAT BLOCK ASSEMBLY

- **Removing/Attaching** (Remove the FL block assembly. (Refer to page 5-2))

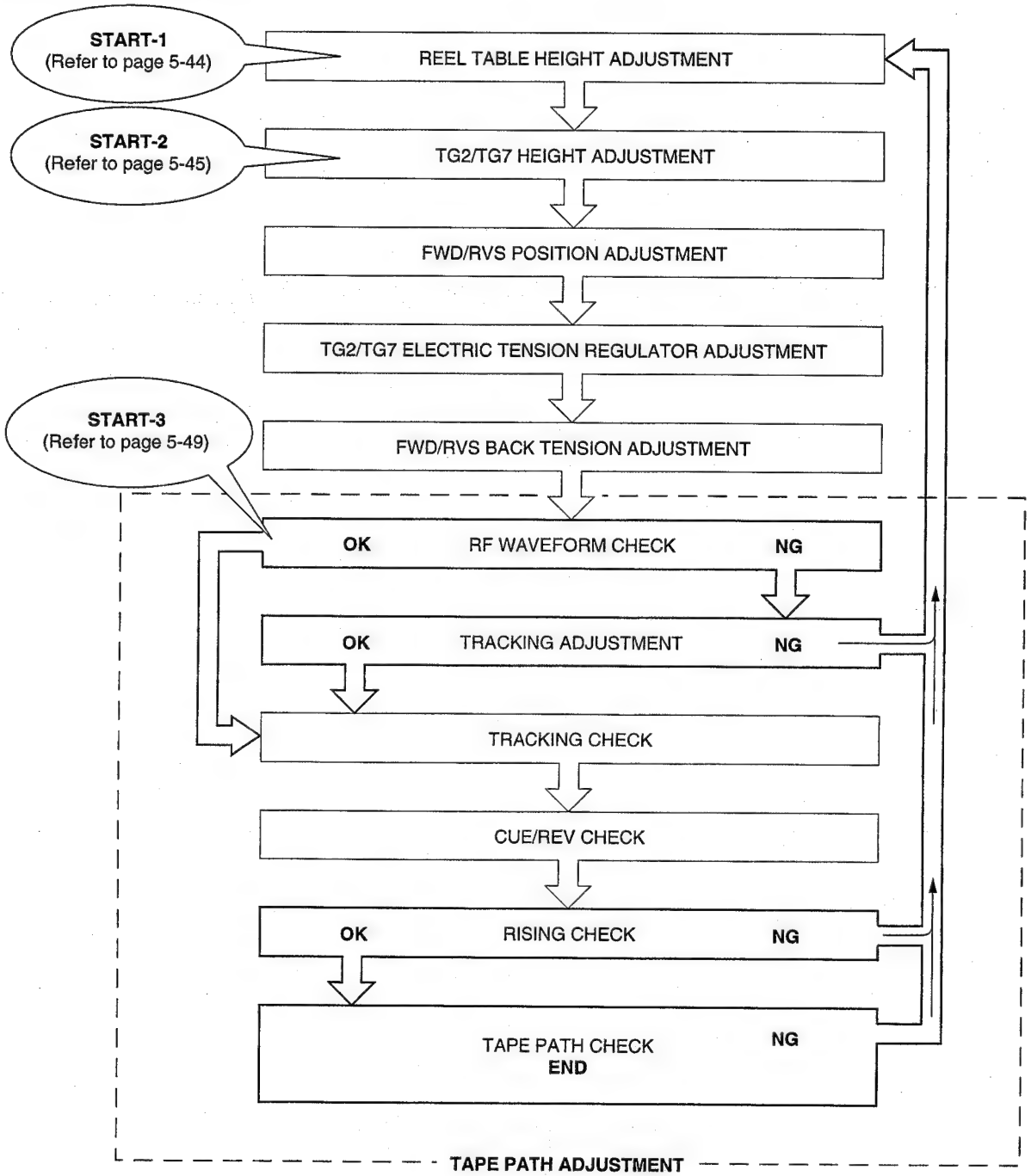


5-1-6. ADJUSTMENTS AND CHECKS

6-1. ADJUSTMENT POSITION



6-2. ADJUSTMENT ORDER



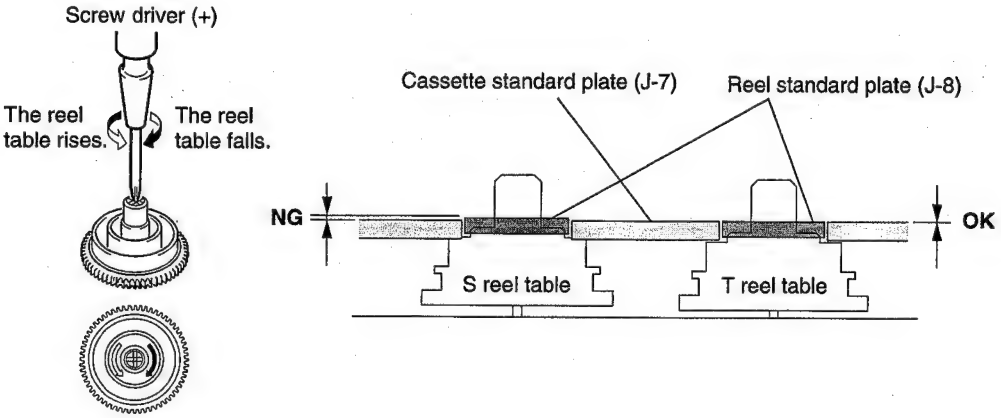
6-3. ADJUSTMENT AND CHECKING METHOD

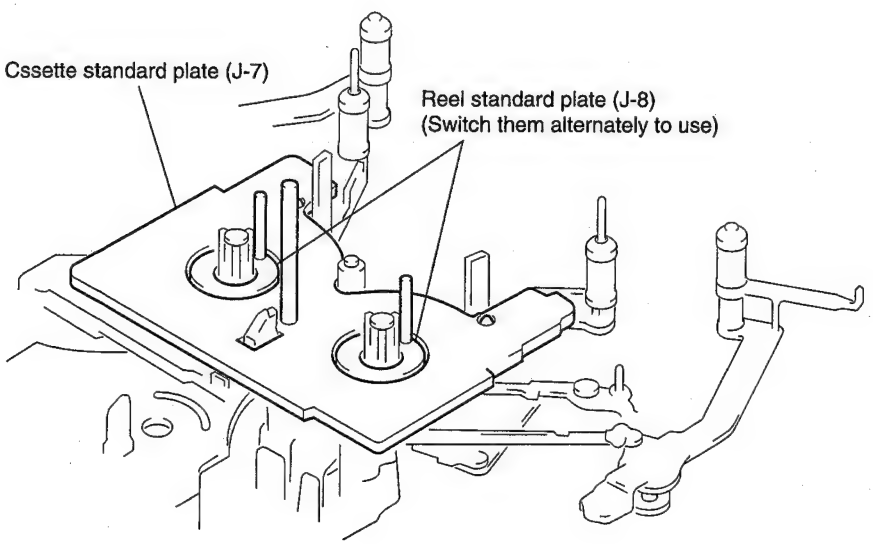
6-3-1. REEL TABLE HEIGHT ADJUSTMENT

1. Preparation before adjustment

FL block: Remove.
Position : (LOADING) / (S cassette)
Jig used : Cassette standard plate (J-7), Reel standard plate (J-8) and screwdriver (+)

2. Adjusting



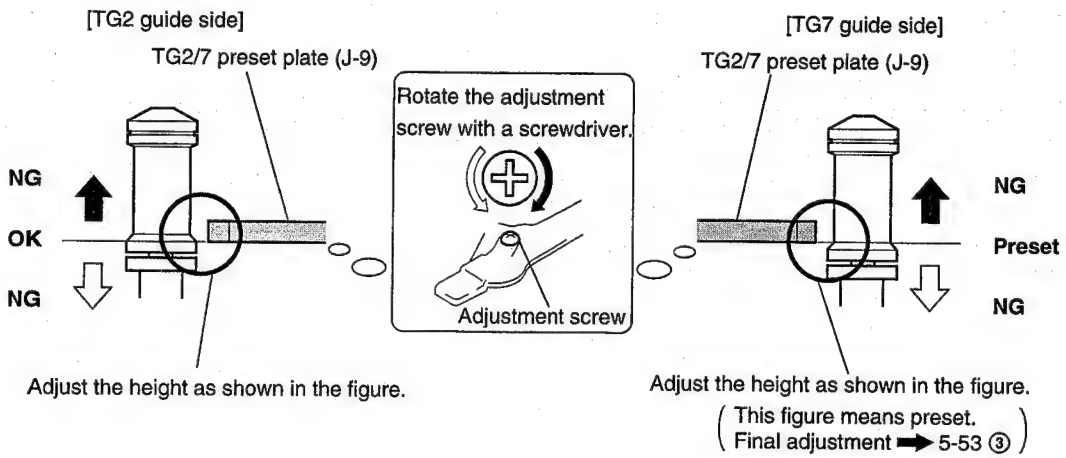


6-3-2. TG2/TG7 HEIGHT ADJUSTMENT

1. Preparation before adjustment

FL block: Remove.
Position : (LOADING) / (S cassette)
Jig used : Cassette standard plate (J-7), TG2/7 preset plate (J-9) and screwdriver
(For attaching jigs, refer to page 5-5)

2. Adjusting

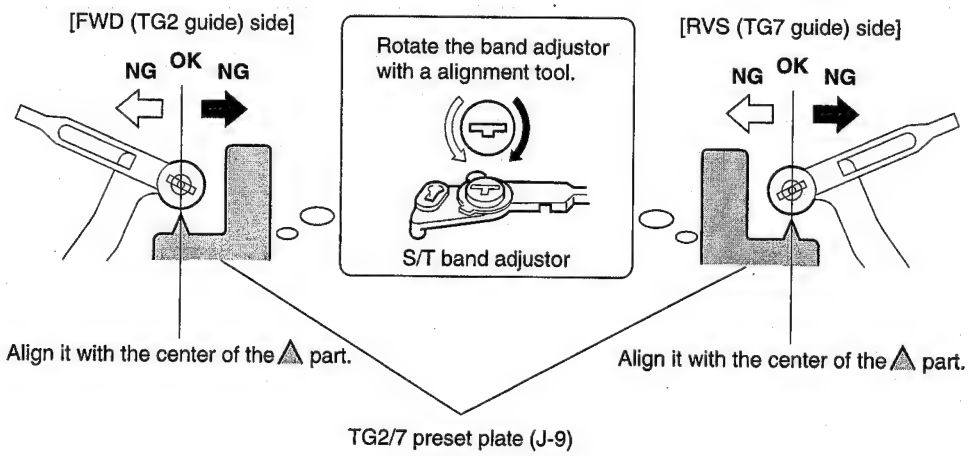


6-3-3. FWD/RVS POSITION ADJUSTMENT

1. Preparation before adjustment

FL block: Remove.
Position : (LOADING (The pinch roller should be stuck)) / (S cassette)
Jig used : Cassette standard plate (J-7), TG2/7 preset plate (J-9) and screwdriver for tape path

2. Adjusting

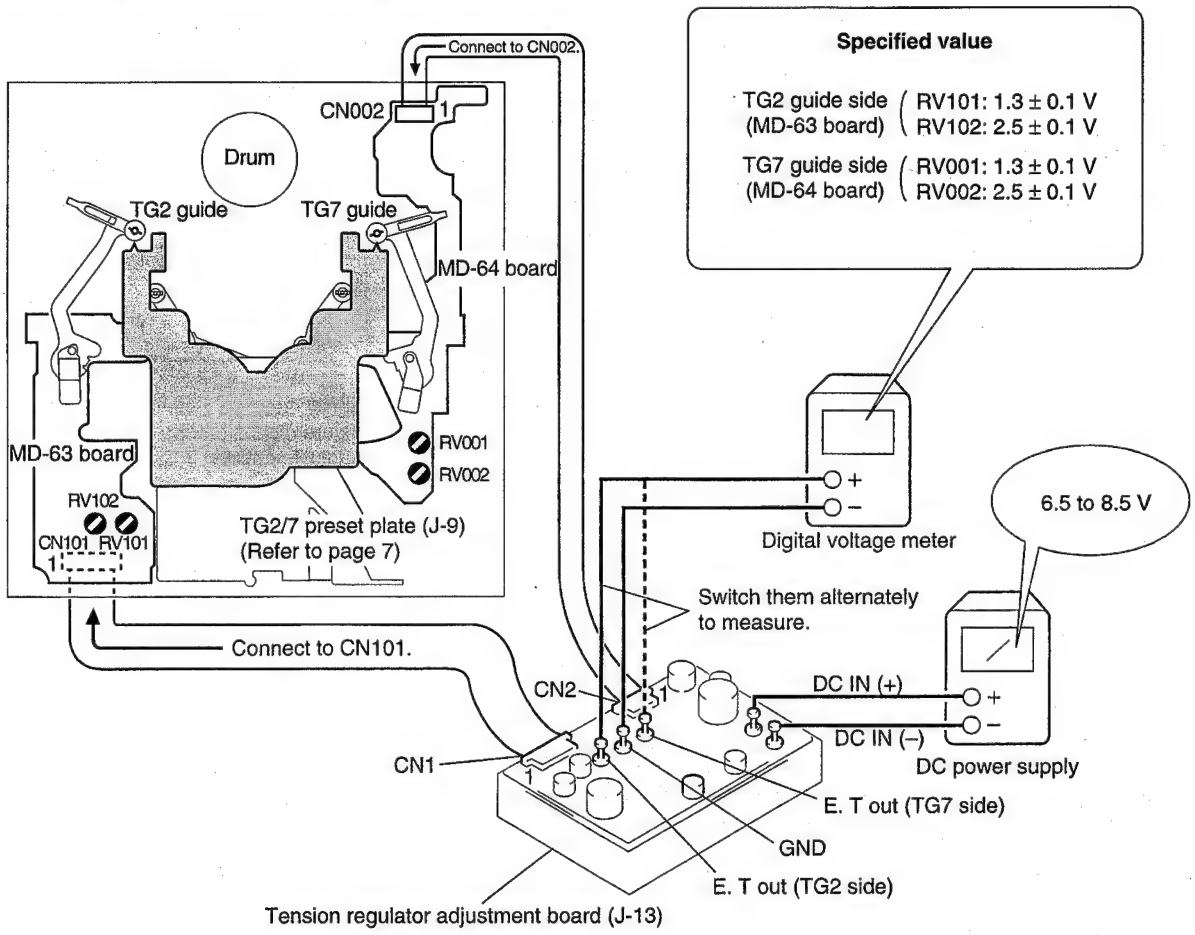


6-3-4. TG2/TG7 ELECTRIC TENSION REGULATOR ADJUSTMENT

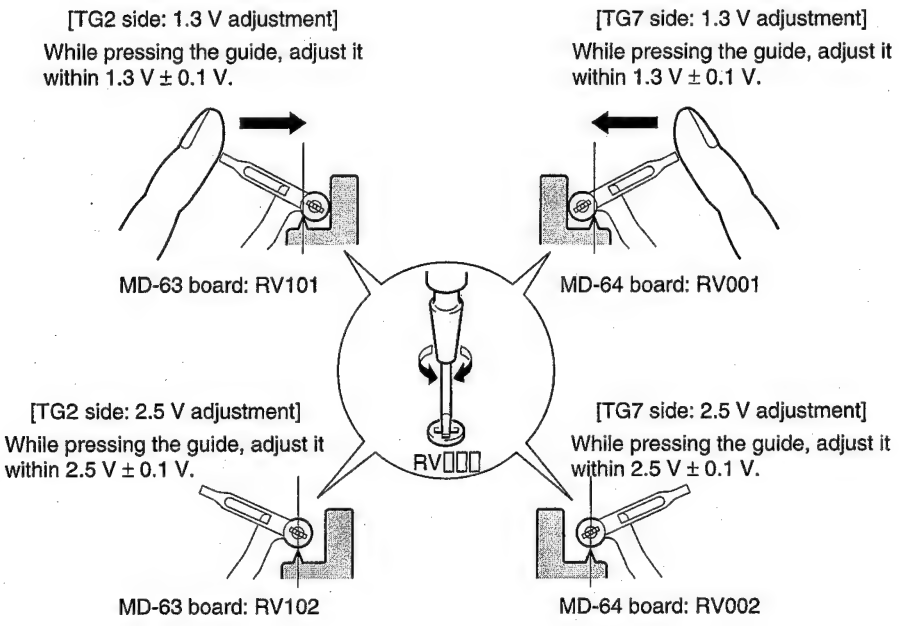
1. Preparation before adjustment

FL block: Remove.
Position : (**LOADING** (The pinch roller should be stuck)) / (**S cassette**)
Jig used : Cassette standard plate (J-7), TG2/7 preset plate (J-9) and screwdriver for tape path
(For attaching jigs, refer to page 5-5)

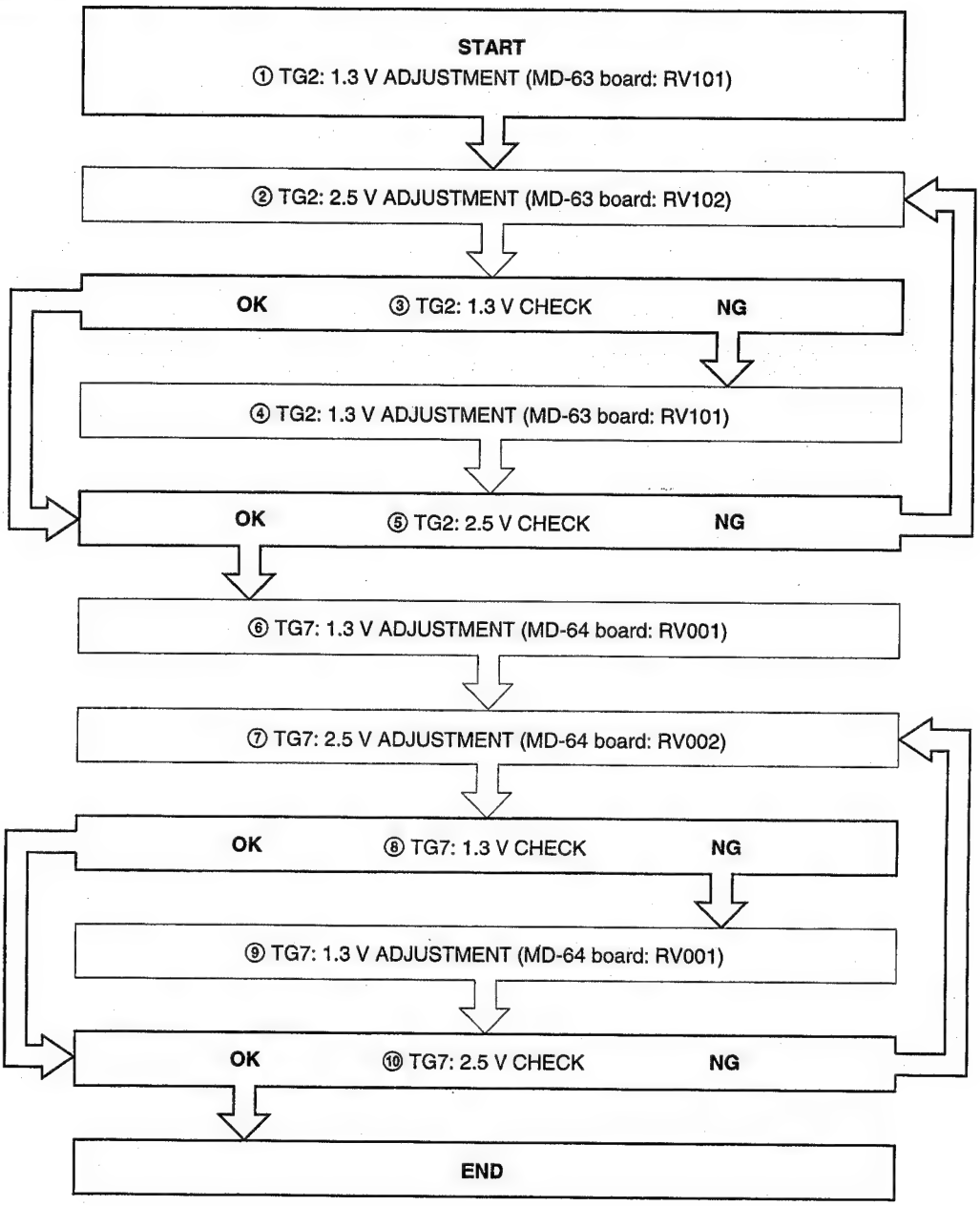
2. Connecting, setting, and adjusting methods



3. Adjusting



4. Adjustment order



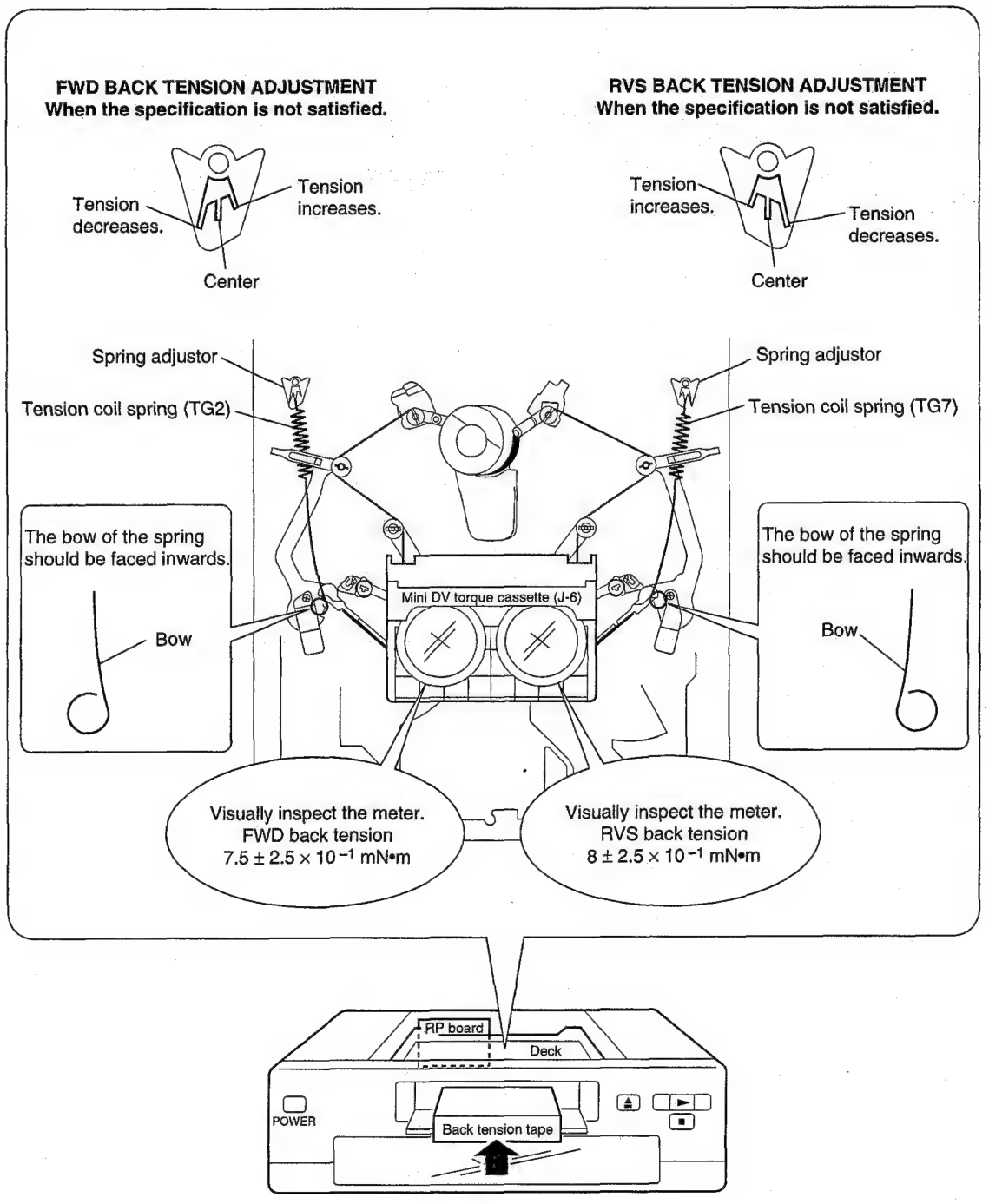
6-3-5. FWD/RVS BACK TENSION ADJUSTMENT

1. Preparation before adjustment

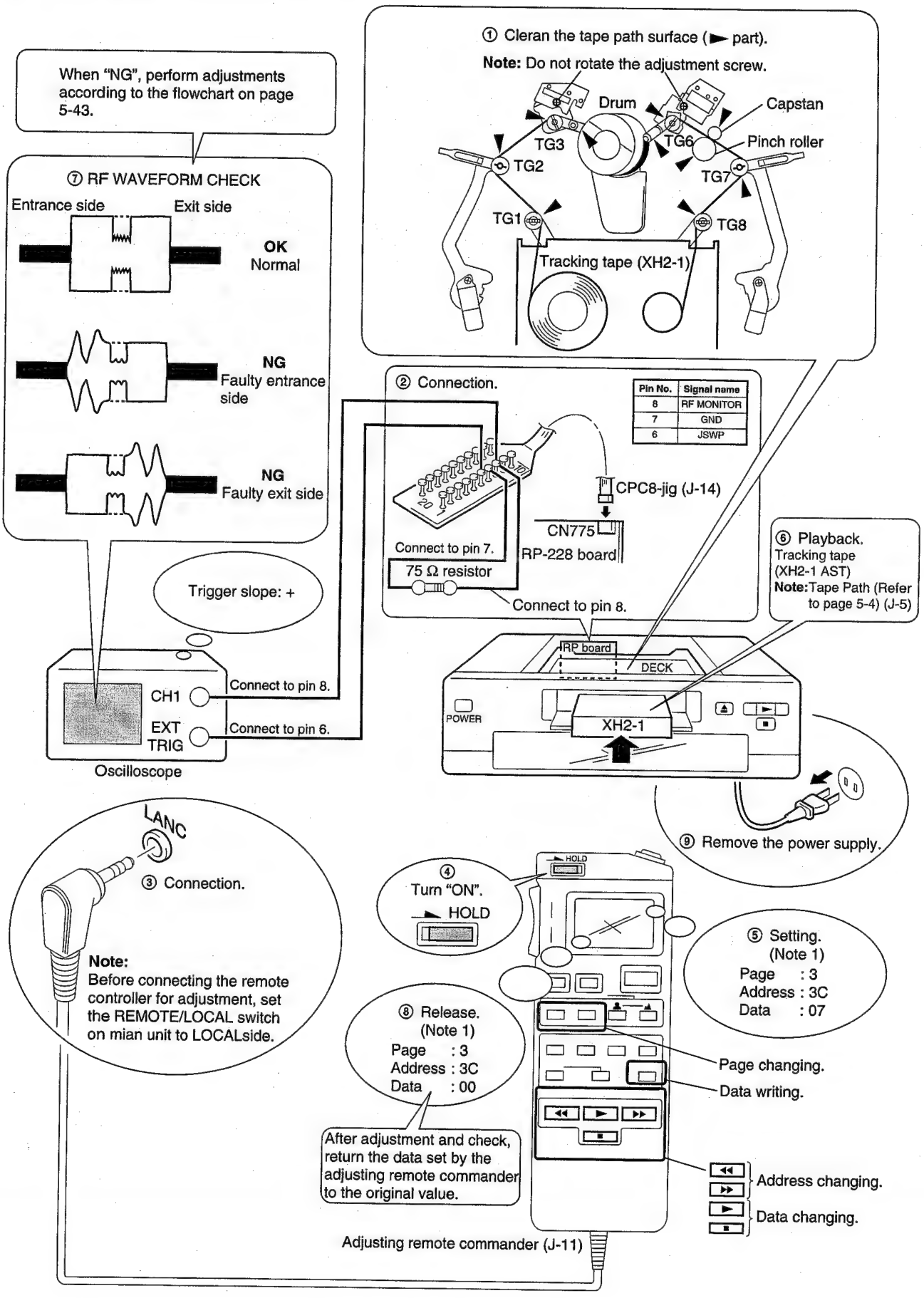
Mechanism deck: Install to the unit.
Jig used : Mini DV torque cassette (J-6), pinset (For change the hooking of spring)

2. Adjusting

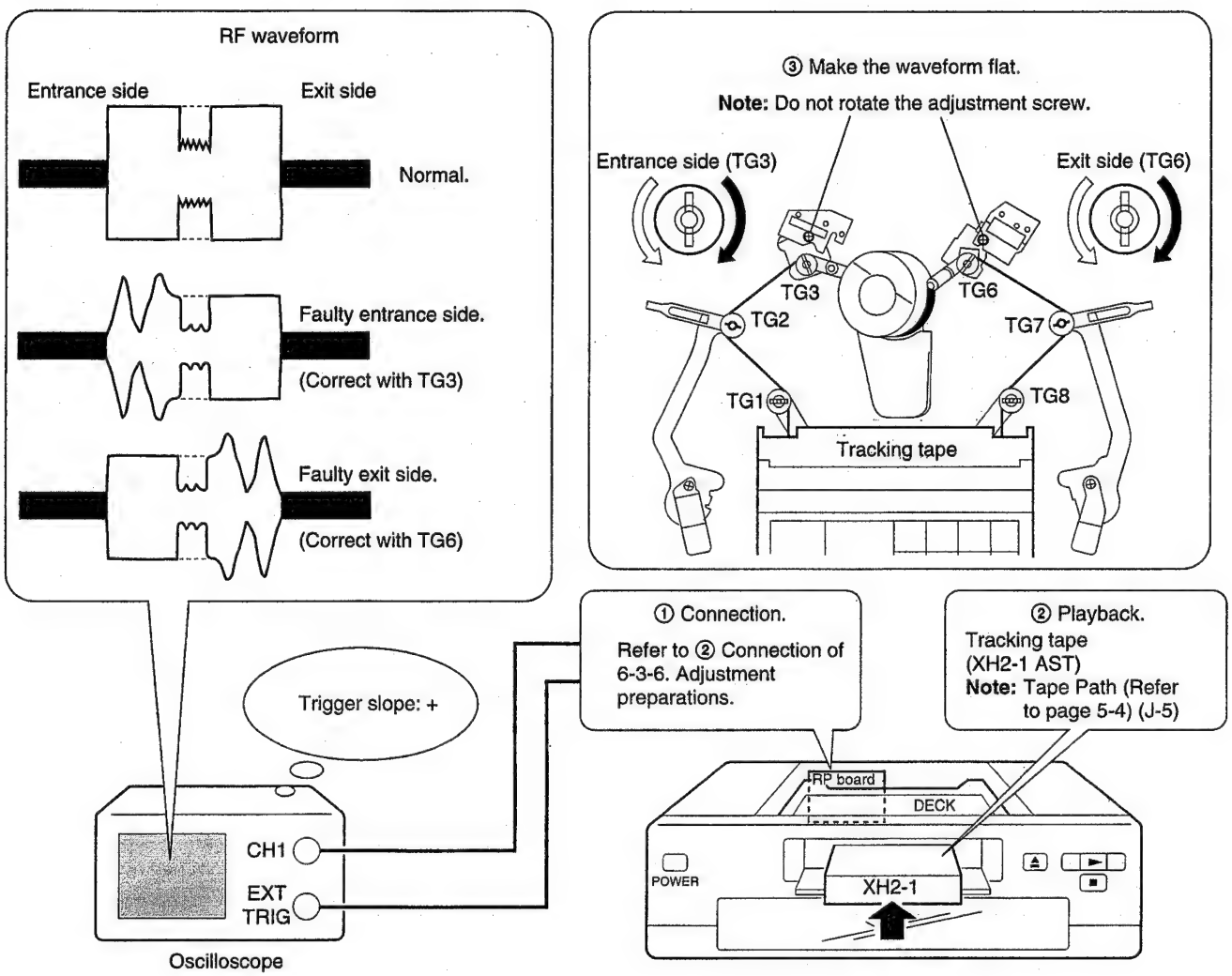
Note: At the FWD (TG2) side, measure the Mini DV torque cassette (J-6) in the FWD mode.
At the RVS (TG7) side, measure the Mini DV torque cassette (J-6) in the RVS mode.



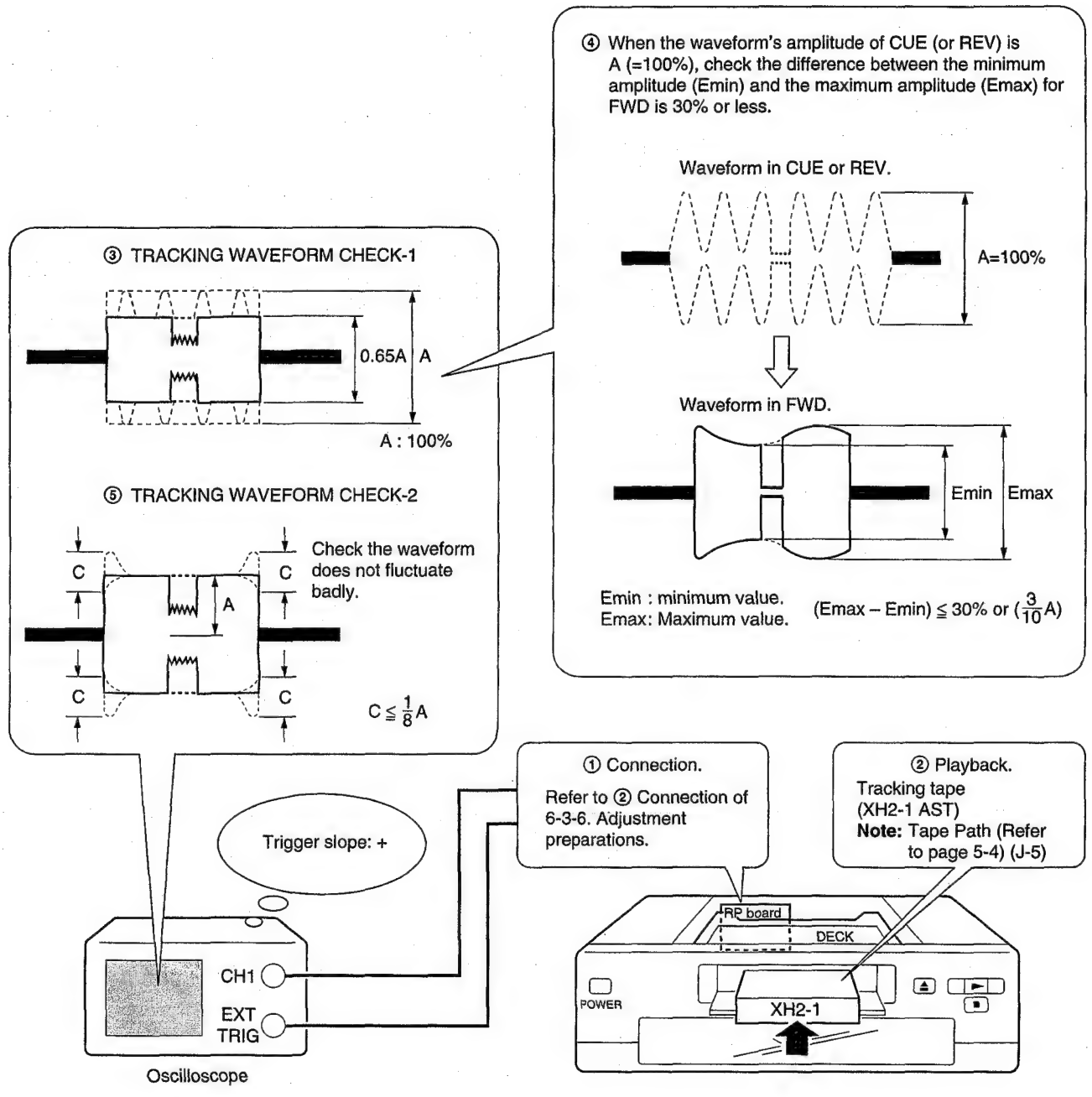
6-3-6. ADJUSTMENT PREPARATIONS AND RF WAVEFORM CHECK



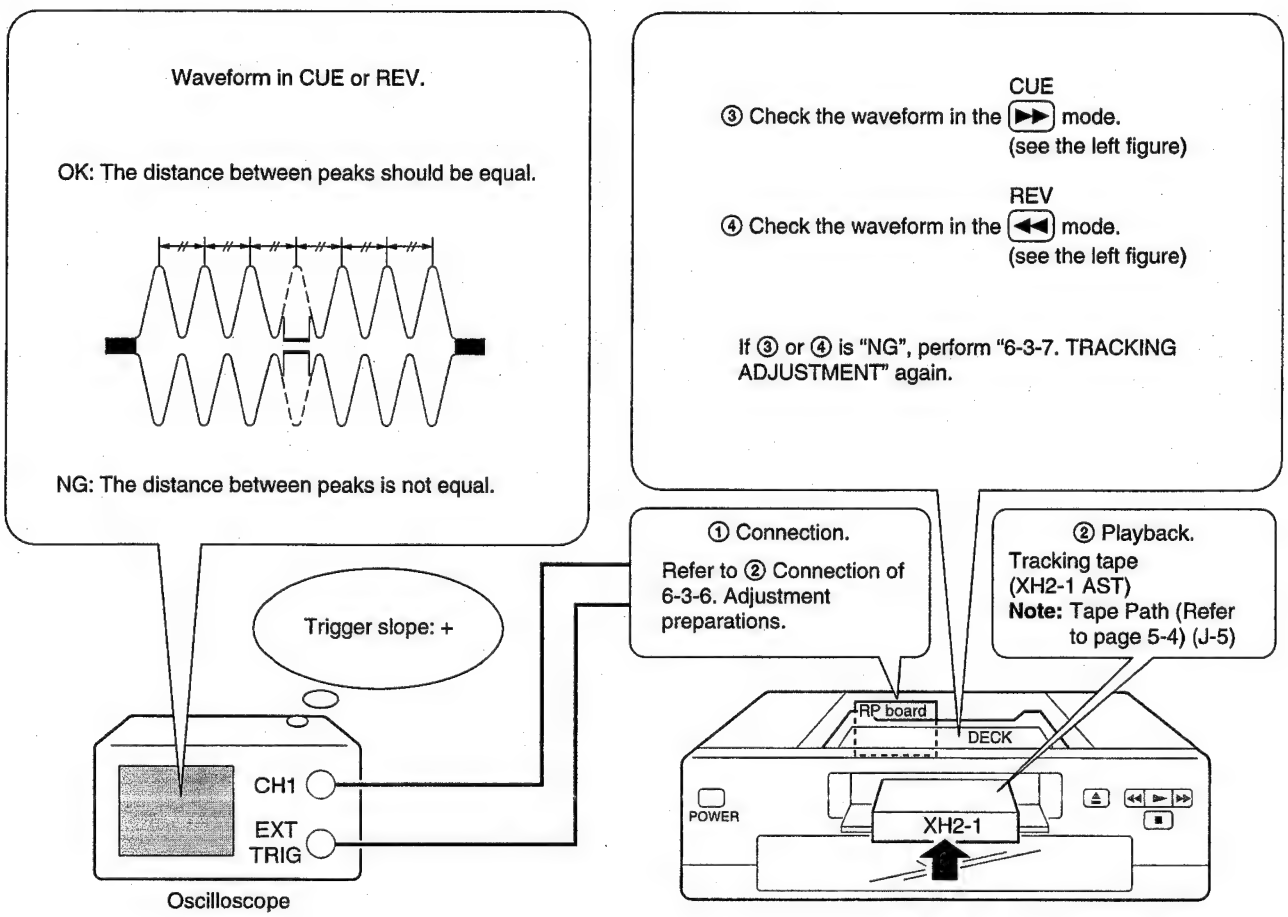
6-3-7. TRACKING ADJUSTMENT



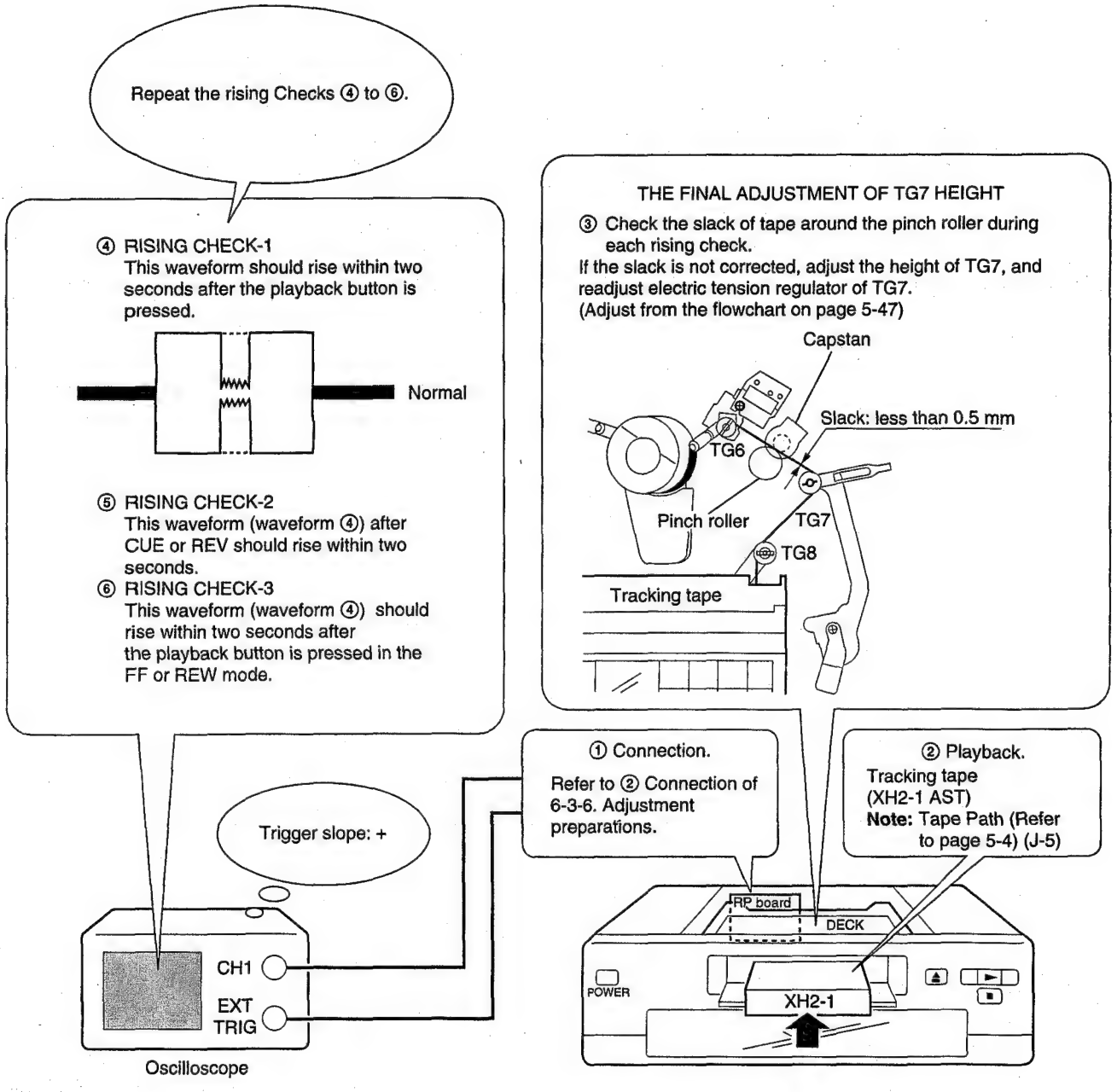
6-3-8. TRACKING CHECK



6-3-9. CUE AND REV CHECK



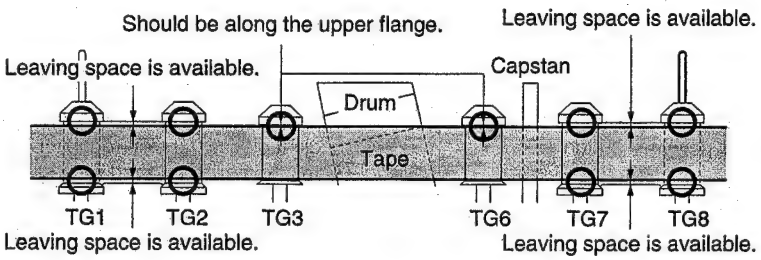
6-3-10. RISING CHECK



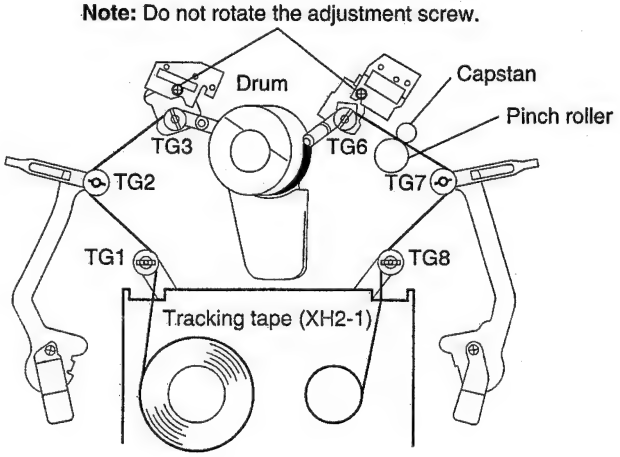
6-3-11. TAPE PATH CHECK

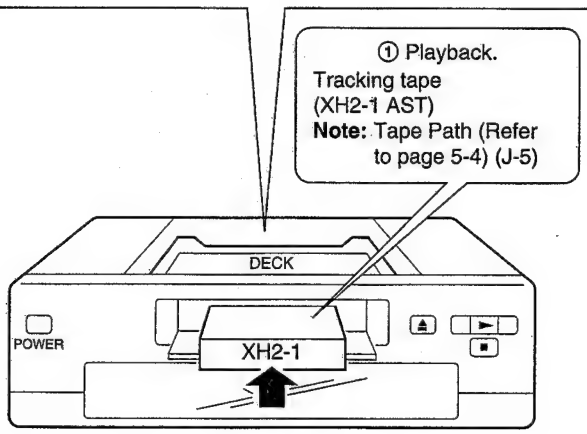
② It will be okayed, if there is no curls at the guides, capstan, etc. (○ part) in the CUE (▶▶) and REV (◀◀) mode.

The following is ideal, but, it is satisfactory if the RF waveform is normal.



Note: Do not rotate the adjustment screw.





③ After adjustment and check, return the data set by the adjusting remote commander to the original value.

5-2. SERVICE MODE

5-2-1. ADJUSTING REMOTE COMMANDER

The adjusting remote commander is used for changing the calculation coefficient in signal processing, EVR data, etc. The adjusting remote commander performs bi-directional communication with the unit using the remote commander signal line (LANC). The resultant data of this bi-directional communication is written in the non-volatile memory.

1. Used Adjustment Remote Commander

1) With the unit set in STANDBY mode, connect the adjusting remote commander to the remote (LANC) terminal.
2) Adjust the HOLD switch of the adjusting remote commander to "HOLD" (SERVICE position).
3) Turn on the power with the ON/STANDBY switch of the unit.

If it has been properly connected, the LCD on the adjusting remote commander will display as shown in Fig. 5-2-1.

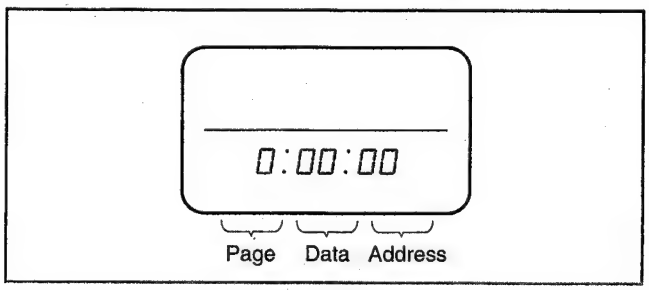


Fig. 5-2-1.

4) Operate the adjusting remote commander as follows.
   • Changing the page
   The page increases when the EDIT SEARCH + button is pressed, and decreases when the EDIT SEARCH – button is pressed. There are altogether 16 pages, from 0 to F.

Hexadecimal notation	0 1 2 3 4 5 6 7 8 9 A B C D E F
LCD Display	0 1 2 3 4 5 6 7 8 9 A b c d E F
Decimal notation conversion value	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Table 5-2-1.

   • Changing the address
   The address increases when the FF (▶▶) button is pressed, and decreases when the REW (◀◀) button is pressed. There are altogether 256 addresses, from 00 to FF.
   • Changing the data (Data setting)
   The data increases when the PLAY (▶) button is pressed, and decreases when the STOP (■) button is pressed. There are altogether 256 data, from 00 to FF.
   • Writing the adjustment data
   The PAUSE button must be pressed to write the adjustment data (C page, D page and E page) in the nonvolatile memory. (The new adjustment data will not be recorded in the nonvolatile memory if this step is not performed.)

2. Precautions Upon Using The Adjusting Remote Commander

Mishandling of the adjusting remote commander may erase the correct adjustment data at times. To prevent this, it is recommended that all adjustment data be noted down before beginning adjustments and new adjustment data after each adjustment.

5-2-2. DATA PROCESSING

The calculation of the adjusting remote commander display data (hexadecimal notation) are required for obtaining the adjustment data of some adjustment items. In this case, after converting the hexadecimal notation to decimal notation, calculate and convert the result to hexadecimal notation, and use it as the adjustment data. Table 5-2-2. indicates the hexadecimal notation- the decimal notation, calculation table.

Hexadecimal nontation-Decimal notation

The lower digits of the hexadecimal notation / The upper digits of the hexadecimal notation	0	1	2	3	4	5	6	7	8	9	A (A)	B (b)	C (c)	D (d) ②	E (E)	F (F)
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
4	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
5	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
A (A)	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
①→ B (b)	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
C (c)	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
D (d)	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
E (E)	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
F (F)	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

Note : ( ) indicate the adjusting remote control unit display.

(Example) In the case that the adjusting remote control unit display are BD (bd).
As the upper digit of the hexadecimal notation is B (b), and the lower digit is D (d), the intersection "189" of the ① and ② in the above table is the decimal notation to be calculated.

Table 5-2-2.

5-2-3. SERVICE MODE

1. Emergence Memory Address

Page C	Addresses 30 to 3B

Address	Contents
30	EMG code when first error occurs
32	Upper: MSW code when shift starts when first error occurs Lower: MSW code when first error occurs
33	Lower: MSW code to be moved when first error occurs
34	EMG code when second error occurs
36	Upper: MSW code when shift starts when second error occurs Lower: MSW code when second error occurs
37	Lower: MSW code to be moved when second error occurs
38	EMG code when last error occurs
3A	Upper: MSW code when shift starts when last error occurs Lower: MSW code when last error occurs
3B	Lower: MSW code to be moved when last error occurs

When no error occurs in the unit, data 00 is written in the above addresses (30 to 3B). When the first error occurs in the unit, the data corresponding to the error is written in the first emergency address (30 to 33). In the same way, when the second error occurs, the data corresponding to the error is written in the second emergency address (34 to 37).
Finally, when the last error occurs, the data corresponding to the error is written in the last emergency address (38 to 3B). Consequently, addresses 30 to 3B are updated each time errors occur.

Note 1: After completing adjustments, be sure to rewrite the data of addresses 30 to 3B to 00.

1) Select page: 0, address: 01, and set data: 01.
2) Select page: C, address: 30, set data: 00, and press the PAUSE button of the adjusting remote commander.
3) Select page: C, address: 31, set data: 00, and press the PAUSE button of the adjusting remote commander.
4) Select page: C, address: 32, set data: 00, and press the PAUSE button of the adjusting remote commander.
5) Select page: C, address: 33, set data: 00, and press the PAUSE button of the adjusting remote commander.
6) Select page: C, address: 34, set data: 00, and press the PAUSE button of the adjusting remote commander.
7) Select page: C, address: 35, set data: 00, and press the PAUSE button of the adjusting remote commander.
8) Select page: C, address: 36, set data: 00, and press the PAUSE button of the adjusting remote commander.
9) Select page: C, address: 37, set data: 00, and press the PAUSE button of the adjusting remote commander.
10) Select page: C, address: 38, set data: 00, and press the PAUSE button of the adjusting remote commander.
11) Select page: C, address: 39, set data: 00, and press the PAUSE button of the adjusting remote commander.
12) Select page: C, address: 3A, set data: 00, and press the PAUSE button of the adjusting remote commander.
13) Select page: C, address: 3B, set data: 00, and press the PAUSE button of the adjusting remote commander.
14) Select page: 0, address: 01, set data: 00, and press the PAUSE button of the adjusting remote commander.

1-1. EMG Code (Emergency Code)

Codes corresponding to the errors which occur are written in addresses 30, 34, 38. The type of error indicated by the code are shown in the following table.

Code	Error Type
00	No error (Initial state)
10	Loading motor time-out during LOAD
11	Loading motor time-out during UNLOAD
20	Reel motor error
22	T reel error
23	S reel error
24	Swing error
32	Error during normal capstan rotation
33	Cassette compartment LOAD error
35	Cassette compartment UNLOAD error
40	FG error during drum start-up
42	FG error during normal drum rotation
50	DEW detection
52	Wet DEW detection
60	Electrical tension regulator error

5-3. VIDEO SECTION ADJUSTMENTS

When performing adjustments, refer to the layout diagrams for adjustment related parts on page 5-88.

3-1. PREPARATIONS BEFORE ADJUSTMENT

3-1-1. Equipment Used

1) TV monitor
2) Oscilloscope with 2-phenomenon, 30 MHz band, and delay mode (Unless specified otherwise, use a 10 : 1 probe)
3) Frequency counter
4) Digital voltmeter
5) Audio generator
6) Audio level meter
7) Audio distortion meter
8) Audio attenuator
9) Pattern generator (with VIDEO OUTPUT terminal and external sync function)
10) Digital camera recorder
    NTSC : DCR-VX1000
    PAL : DCR-VX1000E
11) Vectorscope
12) Alignment tape
    - SW/OL reference (XH2-3)
      Parts code: 8-967-997-11
    - Audio operation check for NTSC (XH5-3)
      Parts code: 8-967-997-51
    - System operation check for NTSC (XH5-5)
      Parts code: 8-967-997-61
    - Audio operation check for PAL (XH5-3P)
      Parts code: 8-967-997-55
    - System operation check for PAL (XH5-5P)
      Parts code: 8-967-997-66
    - BIST check for NTSC (XH5-6)
      Parts code: 8-967-997-71
    - BIST check for PAL (XH5-6P)
      Parts code: 8-967-997-76
13) Adjusting remote control unit (J-6082-053-B)
14) Multi CPC-8 jig (J-6082-388-A). (CN775 of the RP-228 board)
15) Extension board
    - For extension between CN101 of the RP-228 board and CN412 of the JC-19 board.
    - For extension between CN102 of the RP-228 board and CN411 of the JC-19 board. (30P, 0.5 mm) (J-6082-270-A)
    - For extension between CN771 of the RP-228 board and drum (M901) (10P, 1 mm) (J-6082-064-A)
    - For extension between CN002 of the CM-56 board and CN501 of the VA-102 board (8P, 1 mm) (J-6082-058-A)
    - For extension between CN006 of the CM-56 board and the reel motor (M904) (15P, 1.25 mm) (J-6902-354-A)
    - For extension between CN001 of the CM-56 board and CN101 of the MD-63 board (16P, 1 mm) (J-6082-020-A)
16) Regulated power supply

    NTAC : DSR-20MD
    PAL : DSR-20MDP

3-1-2. Connection of Equipment

According to the specification for the input terminal (S VIDEO input, VIDEO input, or DV input), connect measuring equipment as shown in Fig. 5-3-1, and make adjustment.
The input terminal is specified in ( ) of the signal column.
Any input terminal can be used unless otherwise specified.
To switch between S VIDEO INPUT and VIDEO INPUT, use the VIDEO SELECT button on the front panel.

Note 1: In adjustments specifying for the S VIDEO input to be used, using the VIDEO input would disable the product specifications of this unit from being satisfied. Always use the input signal specified.

Note 2: If adjustments are used with the VTR with the S video output terminal as the signal source, the performance of this unit may be affected by the VTR. Use a pattern generator with a Y/C separator terminal as much as possible.

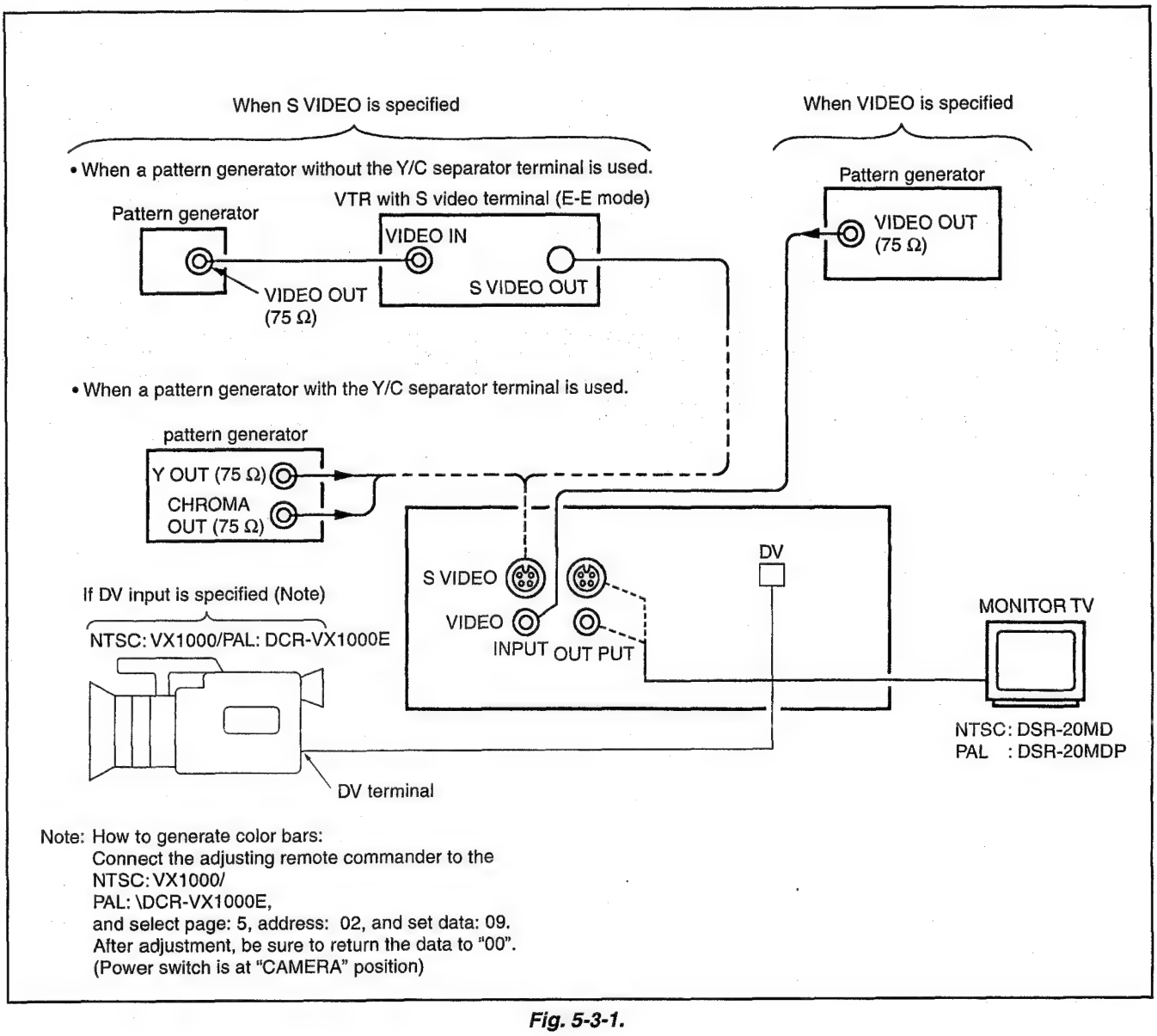


Fig. 5-3-1.

3-1-3. Adjusting Connectors (RP-228 Board CN775)

Some of the adjusting points of the video section are concentrated at CN775 of the RP-228 board. Connect the instruments via the multi CPC-8 jig (J-6082-388-A)

Pin No.	Signal Name	Pin No.	Signal Name
1	TCK	2	TMS
3	TDI	4	GND
5	TRACK ID	6	JSWP
7	GND	8	RF MONITOR
9	VCC2	10	AGC IN
11	VCC1	12	EQ IN
13	LOCK	14	REF OUT
15	ENV OUT	16	GND
17	TDO	18	C1ERP
19	FLTD	20	GND

Table 5-3-1.

3-1-4. Checking the Input Signals

Because the video signal obtained from the pattern generator is used as the adjustment signal for adjustments, the video output signal must satisfy the given specifications.

1. S VIDEO Input

Connect the oscilloscope to the Y signal terminal of the S VIDEO input terminal, and check that the sync signal of the Y signal is approximately <0.286> [0.30] V and that the amplitude of the video section is approximately <0.714> [0.70] V. (When a VTR with the S VIDEO output terminal is used, also check that the chroma signal and burst signal have not remained)

Connect the oscilloscope to the chroma signal terminal of the S VIDEO input terminal, and check that the burst signal amplitude of the chroma signal is approximately <0.286> [0.30] V and flat, and that the red signal amplitude of the chroma signal is approximately <0.66> [0.67] V. The Y and chroma signals used in the adjustment are shown in Fig. 5-3-2.

< >: NTSC model
[ ]: PAL model

2. VIDEO Input

Connect the oscilloscope to the VIDEO input terminal, and check that the sync signal amplitude of the video signal is approximately <0.286> [0.30] V, the amplitude of the video section is approximately <0.714> [0.70] V, the amplitude of the burst signal is approximately <0.286> [0.30] V and flat, and that the red signal amplitude of the chroma signal is approximately <0.66> [0.67] V. The video signal (color bar) used for adjustments is shown in Fig. 5-3-3.

< >: NTSC model
[ ]: PAL model

NTAC : DSR-20MD
PAL : DSR-20MDP

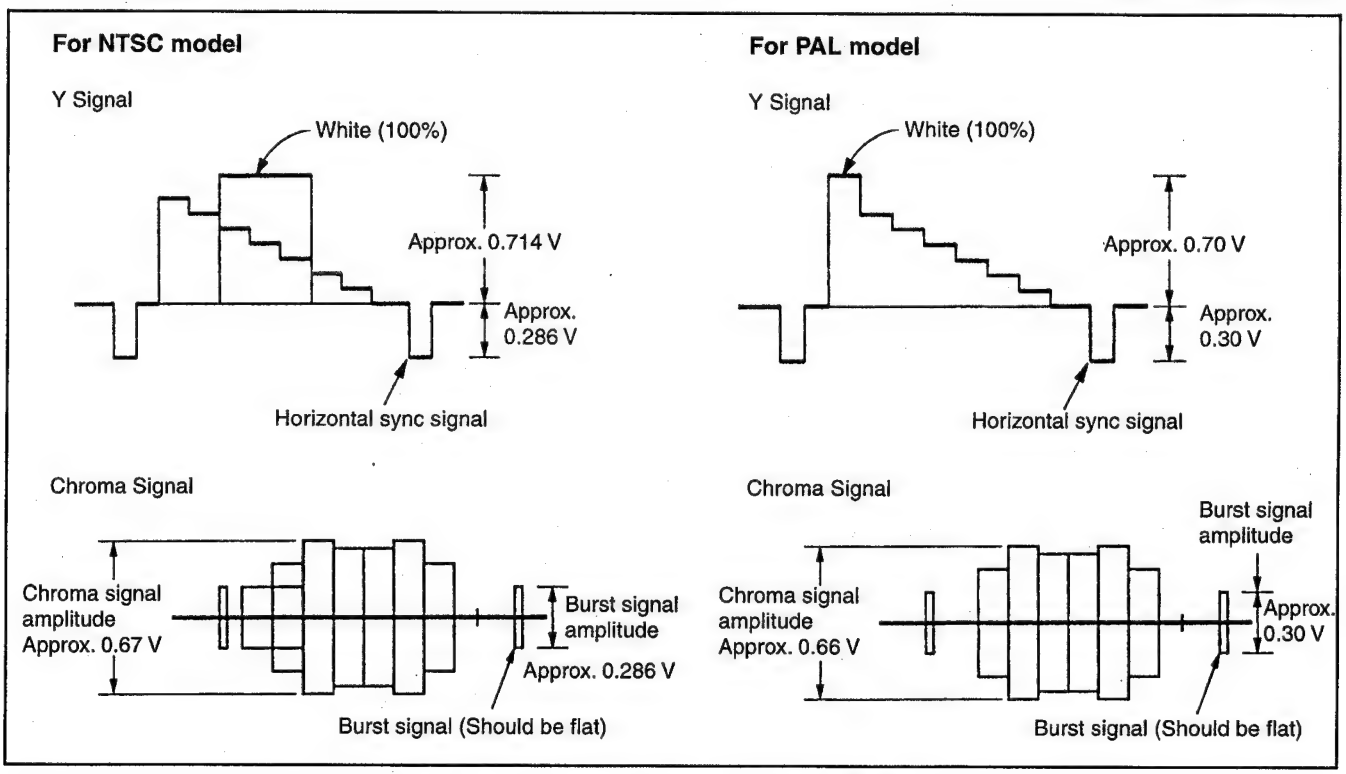


Fig. 5-3-2. Color Bar Signal of Pattern Generator

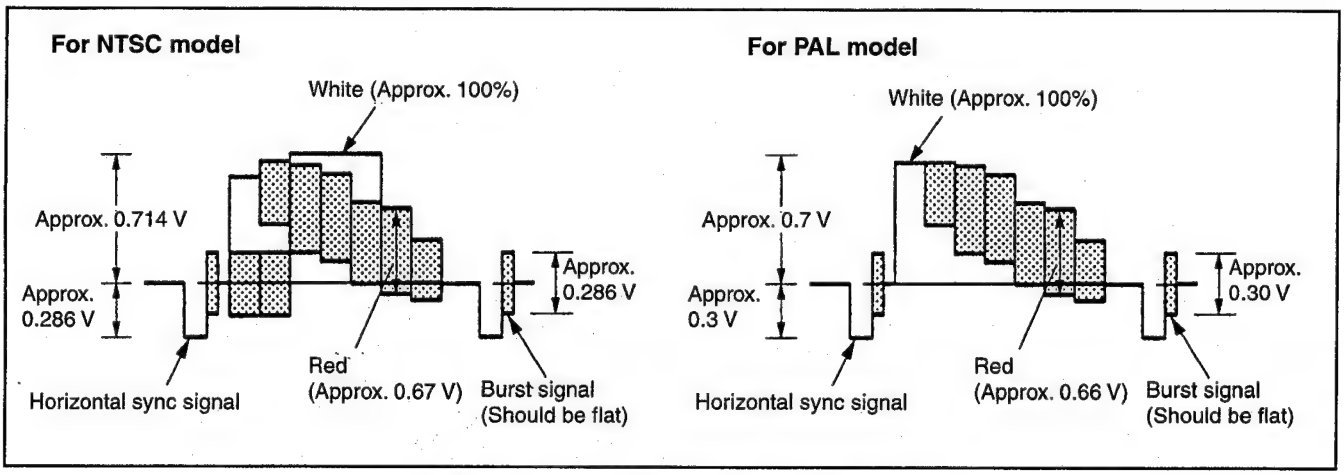


Fig. 5-3-3. Color Bar Signal of Pattern Generator

3-1-5. Adjustment Tapes

Use the alignment tapes shown in the following table.
Use tapes specified in the signal column of each adjustment.

Name	Use
SW/OL standard (XH2-3)	Switching position adjustment
Audio operation check (XH5-3 (NTSC), XH5-3P (PAL))	Audio system adjustment
System operation check (XH5-5 (NTSC), XH5-5P (PAL))	Operation check
BIST check (XH5-6 (NTSC), XH5-6P (PAL))	BIST check

Table 5-3-2.

Fig. 5-3-4. shows the 75% color bar signals recorded on the alignment tape for Audio Operation Check (NTSC).

Note : Measure with video terminal (Terminated at 75 Ω)

NTAC : DSR-20MD
PAL : DSR-20MDP

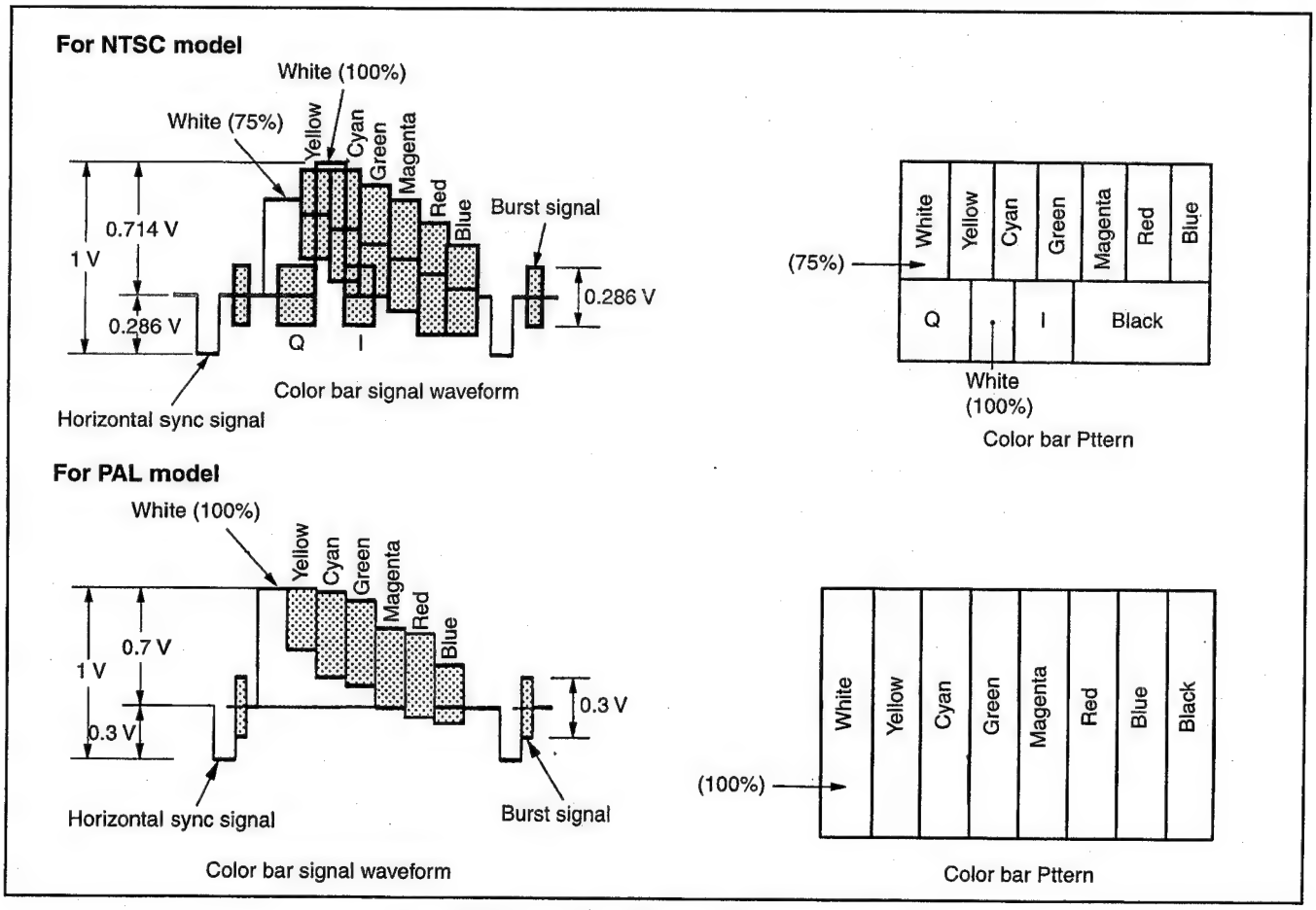


Fig. 5-3-4. *Color Bar Signal of Alignment Tapes*

3-1-6. Input/ Output Level and Impedance

LINE IN

Video input	BNC connector Input signal: 1 Vp-p (75 ohms unbalanced)
S Video input	Mini DIN 4-pin Luminance signal: 1 Vp-p (75 ohms unbalanced) Chrominance signal: 0.286 Vp-p (NTSC), 0.3 Vp-p (PAL), (75 ohms unbalanced)
Audio input	Phono jack (L, R) Input level: 2 Vrms (full bit) Input impedance: more than 47 kohms

LINE OUT

Video output	BNC connector Output signal: 1 Vp-p (75 ohms unbalanced)
S Video output	Mini DIN 4-pin Luminance signal: 1 Vp-p (75 ohms unbalanced) Chrominance signal: 0.286 Vp-p (NTSC), 0.3 Vp-p (PAL), (75 ohms unbalanced)
Audio output	Phono jack (L, R) Output level: 2 Vrms (full bit) Output impedance: less than 10 kohms

3-2. POWER SUPPLY SYSTEM ADJUSTMENT

1. Power Supply Voltage Check Power Block (U-2 Board)

Mode	Playback
Measuring Instrument	Digital voltmeter
UNSW6V Check	
Measuring Point	Pin ① of CN11
Specified Value	6.0 ± 0.5 Vdc
UNSW3.1V Check	
Measuring Point	Pin ② of CN11
Specified Value	3.1 ± 0.2 Vdc
VIDEO5V, AUDIO5V Check	
Measuring Point	Pin ③, ⑦ of CN11
Specified Value	5.0 ± 0.12 Vdc
SW3.1V Check	
Measuring Point	Pin ④ of CN11
Specified Value	3.1 ± 0.1 Vdc
VIDEO–5V, AUDIO–5V Check	
Measuring Point	Pin ⑥, ⑨ of CN11
Specified Value	–5.0 ± 0.12 Vdc
SW5V Check	
Measuring Point	Pin ③ of CN11
Specified Value	5.0 ± 0.12 Vdc
DRUM6V Check	
Measuring Point	Pin ④ of CN10
Specified Value	6.0 ± 0.5 Vdc
MOTOR14V Check	
Measuring Point	Pin ⑥ of CN10
Specified Value	14.0 ± 2 Vdc

2. Video/Audio Block Power Supply Voltage Check Power Block (U-2 Board)

Mode	Playback
Measuring Instrument	Digital voltmeter
UNSW6V Check	
Measuring Point	Pin ② of CN12
Specified Value	6.0 ± 0.5 Vdc
UNSW3.1V Check	
Measuring Point	Pin ④ of CN12
Specified Value	3.1 ± 0.2 Vdc
UNSW–9V Check	
Measuring Point	Pin ⑦ of CN12
Specified Value	–9 ± 0.5 Vdc
UNSW14V Check	
Measuring Point	Pin ⑧ of CN12
Specified Value	14 ± 2.0 Vdc
UNSW12V Check	
Measuring Point	Pin ③ of CN12
Specified Value	12.0 ± 1 Vdc

3-3. SYSTEM CONTROL SYSTEM ADJUSTMENT

1. Initializing the C, D, E Page Data

Note 1: If "Initializing the C, D, E Page Data" is performed, all data of the C page, D page and E page will be initialized.

Note 2: If the C, D, E page data has been initialized, "Modification of C, D, E page Data" and all adjustments need to be performed again.

Mode	E-E
Signal	Arbitrary
Adjustment Page	C
Adjustment Address	00 to 6F
Adjustment Page	D
Adjustment Address	00 to 4F
Adjustment Page	E
Adjustment Address	00 to 3B

2. Input of C page Initial Data

Input method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 4, address: 02, set data: 01, and press the PAUSE button of the adjusting remote commander.
3) Select page: 4, address: 02, and confirm that the data change in the order of "01" → "03" → "05" → "00".
4) Modify the C page data. (Refer to C page address)

3. Input of D page Initial Data

Input method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 2, address: 00, set data: 2D, and press the PAUSE button of the adjusting remote commander.
3) Select page: 2, address: 01, set data: 2D, and press the PAUSE button of the adjusting remote commander.
4) Select page: 2, address: 02, and confirm that the data is "01".
5) Modify the D page data. (Refer to D page address)

4. Input of E page Initial Data

Input method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 5, address: 00, set data: 2D, and press the PAUSE button of the adjusting remote commander.
3) Select page: 5, address: 01, set data: 2D, and press the PAUSE button of the adjusting remote commander.
4) Select page: 5, address: 02, and confirm that the data is "01".
5) Modify the E page data. (Refer to E page address)

5. Modification of C, D, E, Page Data

If the C, D, E page data has been initialized, change the data of the "Fixed data-2" address shown in the following tables by manual input.

Modifying Method:

1) Before changing the data, select page: 0, address: 01, and set data: 01.
2) New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.

Note : If copy the data built in the different model, this set may not operate.

3) When changing the data, press the PAUSE button of the adjusting remote commander each time when setting new data to write the data in the non-volatile memory.
4) Check that the data of adjustment addresses is the initial value. If not, change the data to the initial value.
5) After completing "Modification of C, D, E Page Data", select page: 0, address: 01, and set data: 00. Also perform all adjustments.

6. Page C Address List

Note 1: Fixed data 1: Initialized data. (Refer to 2. Input of C Page Initial Data)
Fixed data 2: Modified data. (Refer to 5. Modification of C, D, E, Page Data)

Address	Initial Value	Remark
00	Fixed data 1 (Initial data)	
01	Fixed data 2 (Changed data. Read from same model and copy it.)	
02 to 07	Fixed data 1 (Initial data)	
08	Fixed data 2 (Changed data. Read from same model and copy it.)	
09	Fixed data 1 (Initial data)	
0A to 0C	Fixed data 1 (Initial data)	
0D	Fixed data 2 (Changed data. Read from same model and copy it.)	
0E , 0F	Fixed data 1 (Initial data)	
10 to 19	Fixed data 1 (Initial data)	
1A to 1F	Fixed data 1 (Initial data)	
20 to 29	Fixed data 1 (Initial data)	
2A to 2F	Fixed data 1 (Initial data)	
30 to 39	00	Emargency memory address
3A, 3B	00	Emargency memory address
3C, 3D	F8	PLL fo adjustment
3E, 3F	70	Recording current adjustment
40, 41	C0	AEQ adjustment
42, 43	90	AEQ adjustment
44	86	AGC Center level adjustment
45	Fixed data 1 (Initial data)	
46	86	PLL Capture range adjustment
47	C8	CLK delay adjustment
48, 49	Fixed data 1 (Initial data)	
4A, 4B	Fixed data 1 (Initial data)	
4C to 4F	00	Switching position adjustment
50	54	Capstan FG duty adjustment
51	31	Capstan FG duty adjustment
52 to 59	Fixed data 1 (Initial data)	
5A	00	AEQ adjustment
5B to 5F	Fixed data 1 (Initial data)	
60 to 69	Fixed data 1 (Initial data)	
6A to 6F	Fixed data 1 (Initial data)	

Table 5-3-3.

7. Page D Address List

Note 1: Fixed data 1: Initialized data. (Refer to 3. Input of D Page Initial Data)
Fixed data 2: Modified data. (Refer to 5. Modification of C, D, E, Page Data)

Address	Initial Value	Remark
00 to 0F		
10 to 12	Fixed data 1 (Initial data)	
13	Fixed data 2 (Changed data. Read from same model and copy it.)	
14	Fixed data 1 (Initial data)	
15 to 18	Fixed data 2 (Changed data. Read from same model and copy it.)	
19	Fixed data 1 (Initial data)	
1A to 1E	Fixed data 1 (Initial data)	
1F	Fixed data 2 (Changed data. Read from same model and copy it.)	
20 to 29	Fixed data 1 (Initial data)	
2A, 2B	Fixed data 1 (Initial data)	
2C to 2F	Fixed data 2 (Changed data. Read from same model and copy it.)	
30 to 32	Fixed data 1 (Initial data)	
33	59	IC422 27 MHz XTAL fo adjustment
34	19	Playback CR signal level adjustment/ Encoder R-Y input level adjustment
35	37	Playback CB signal level adjustment/ Encoder B-Y input level adjustment
36	18	Playback Y signal level adjustment/ Y output level adjustment
37 to 39	Fixed data 1 (Initial data)	
3A to 3F	Fixed data 1 (Initial data)	
40	Fixed data 1 (Initial data)	
41	00	Playback burst level adjustment
42	Fixed data 2 (Changed data. Read from same model and copy it.)	
43	Fixed data 1 (Initial data)	
44 to 46	Fixed data 2 (Changed data. Read from same model and copy it.)	
47 to 49	Fixed data 1 (Initial data)	
4A	Fixed data 2 (Changed data. Read from same model and copy it.)	
4B to 4F	Fixed data 1 (Initial data)	

Table 5-3-4.

8. Page E Address List

Note 1: Fixed data 1: Initialized data. (Refer to 4. Input of E Page Initial Data)
Fixed data 2: Modified data. (Refer to 5. Modification of C, D, E, Page Data)

Address	Initial Value	Remark
00 to 1B	Fixed data 1 (Initial data)	
1C	Fixed data 2 (Changed data. Read from same model and copy it.)	
1D 1E 1F	8D 86 80	Battery down adjustment and check
20 to 23	Fixed data 1 (Initial data)	
24	Fixed data 2 (Changed data. Read from same model and copy it.)	
25 to 3F	Fixed data 1 (Initial data)	

Table 5-3-5.

3-4. SERVO SYSTEM ADJUSTMENTS

1. Switching Position Adjustment (CM-56 Board)

Mode	Playback
signal	SW/OL reference tape
Measurement Point	Page: 3, address: 03 on displayed data of adjusting remote commander
Measuring Instrument	Adjusting remote commander
Adjustment Page	C
Adjustment Address	4C, 4D, 4E, 4F
Specified Value	"00"

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 3, address: 01, set data: 0E, and press the PAUSE button of the adjusting remote commander.
3) Select page: 3, address: 02, and confirm that the data changes from "0E" to "00".
4) Select page: 3, address: 03, and confirm that the data is "00".
5) Turn OFF the HOLD switch on he adjusting remote commander and wait for more than 2 seconds. (The adjusted data are automatically written to page: C, address: 4C to 4F)
6) Turn ON the HOLD switch on the adjusting remote commander.
7) Select page: 0, address: 01, and set data: 00.
8) Stop the tape playback.
9) Turn the POWER switch OFF.

2. Capstan FG Duty Adjustment (CM-56 Board)

Mode	Playback
signal	Arbitrary tape
Measurement Point	Page: 3, address: 03 on displayed data of adjusting remote commander
Measuring Instrument	Adjusting remote commander
Adjustment Page	C
Adjustment Address	50, 51
Specified Value	"00"

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 3, address: 01, set data: 15, and press the PAUSE button of the adjusting remote commander.
3) Select page: 3, address: 02, and confirm that the data changes from "15" to "00".
4) Select page: 3, address: 03, and confirm that the data is the following value
   When "00": Normal
   When "01": Faulty
   Perform the following adjustment only when "00" is displayed.
5) Select page: 3, address: 04 and 05, read the data, and take the values as D_{04} and D_{05} respectively.
   (The data on page: 3, address: 05 must be 2F to 3F)
6) Select page: C, address: 50, set data: D_{04}, and press the PAUSE button of the adjusting remote commander.
7) Select page: C, address: 51, set data: D_{05}, and press the PAUSE button of the adjusting remote commander.
8) Select page: 3, address: 01, set data: 00, and press the PAUSE button of the adjusting remote commander.
9) Select page: 0, address: 01, and set data: 00.
10) Stop the tape playback.
11) Turn the POWER switch OFF.

3-5. VIDEO SYSTEM ADJUSTMENTS

3-5-1. RP-228 Board Adjustments

1. Recording Current Adjustment (RP-228 Board)

Mode	E-E
Measurement Point	ODDch adjustment CH1: Pin ⑥ of CN771 (CL812) CH2: Pin ⑤ of CN771 (CL813) EVENch adjustment CH1: Pin ② of CN771 (CL816) CH1: Pin ③ of CN771 (CL815)
Measuring Instrument	Oscilloscope ADD mode CH2 INV mode
Adjustment Page	C
Adjustment Address	3E, 3F
Specified Value	A = 4.1 ± 0.1 Vp-p

Connection: Disconnect CN771 and connect as follows.

1) ODDch adjustment: Connect a 180 Ω resistor between Pin ⑥ of CN771 (CL812) and Pin ⑤ of CN771 (CL813).
2) EVENch adjustment: Connect a 180 Ω resistor between Pin ② of CN771 (CL816) and Pin ③ of CN771 (CL815).
   180 Ω resistor (Parts code: 1-249-408-11)

Adjusting method:

1) Equalize the vertical range of CH1 and CH2 of the oscilloscope.
2) Set the oscilloscope to the ADD mode, and set CH2 to the INV mode.
3) Select page: 0, address: 01, and set data: 01.
4) Select page: 3, address: 01, set data: 0C, and press the PAUSE button of the adjusting remote commander.
5) Select page: 3, address: 34, and set data: 01.
6) Select page: C, address: 3F (ODDch adjustment) or 3E (EVENch adjustment), change the data, and adjust the signal voltage (A) to the specified value, press the PAUSE button on the adjusting remote commander.
7) Select page: 3, address: 34, and set data: 04.
8) Select page: 3, address: 01, set data: 00, and press the PAUSE button of the adjusting remote commander.
9) Select page: 0, address: 01, and set data: 00.

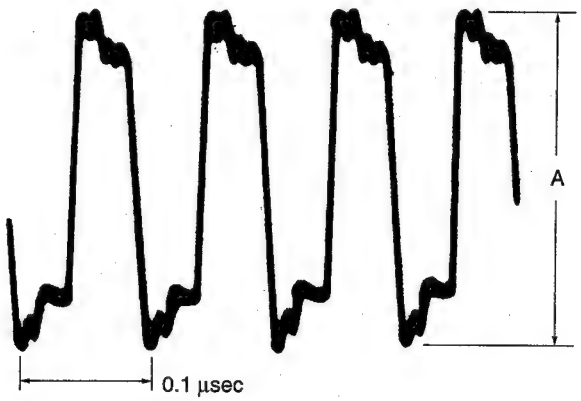


Fig. 5-3-5.

2. PLL fo Adjustment (RP-228 Board)

Mode	E-E
Measurement Point Measuring Instrument	Displayed data of page: 3, address: 04
Adjustment Page	C
Adjustment Address	3D, 3C
Specified Value	Displayed data is "FD" to "FF", "00" to "03" ("FF", "00" are center values)

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 3, address: 01, set data: 05, and press the PAUSE button of the adjusting remote commander.
3) Select page: 3, address: 36, and set data: 04.
4) Select page: 3, address: 04, and check that the average value D_{04} of the displayed data is "FD" to "FF" or "00" to "03". If outside this range, select page: C, address: 3C, change the data, and check again.
   [If D_{04} is "80" to "FC"]
   Select page: C, address: 3C, and decrease the data. (As the data is to be rewritten, press the PAUSE button of the adjusting remote commander)
   [If D_{04} is "04" to "7F"]
   Select page: C, address: 3C, and increase the data. (As the data is to be rewritten, press the PAUSE button of the adjusting remote commander)
5) Select page: 3, address: 36, and set data: 05.
6) Select page: 3, address: 04, and check that the average value D_{04} of displayed data is "FD" to "FF" or "00" to "03". If outside this range, select page: C, address: 3D, change the data, and check again.
   [If D_{04} is "80" to "FC"]
   Select page: C, address: 3D, and decrease the data. (As the data is to be rewritten, press the PAUSE button of the adjusting remote commander)
   [If D_{04} is "04" to "7F"]
   Select page: C, address: 3D, and increase the data. (As the data is to be rewritten, press the PAUSE button of the adjusting remote commander)
7) Select page: 3, address: 01, set data: 00, and press the PAUSE button of the adjusting remote commander.
8) Select page: 3, address: 36, and set data: 02.
9) Select page: 0, address: 01, and set data: 00.

3. CLK DELAY Adjustment (RP-228 Board)

Mode	Recording/playback
Signal	Color bar
Measurement Point	CH1: Pin ⑱ of CN775 (C1ERP) CH2: Pin ⑥ of CN775 (JSWP)
Measuring Instrument	Oscilloscope Trigger source: CH2
Adjustment Page	C
Adjustment Address	47

Adjusting method:

1) Record color bar signal for two minutes on any tape.
2) Select page: 0, address: 01, and set data: 01.
3) Write the following data in page: C, address: 40 to 43, 47, 4B, 5A.
   (To write the data, press the PAUSE button of the adjusting remote commander each time data is set.)
   Page: C, address: 40, data: C0
   Page: C, address: 41, data: C0
   Page: C, address: 42, data: 90
   Page: C, address: 43, data: 90
   Page: C, address: 47, data: C8
   Page: C, address: 4B, data: 80
   Page: C, address: 5A, data: 00
4) Playback the part recorded with the color bar.
5) Select page: C, address: 47, increase the data, and read the data D_1 when the CH1 pulse is set to the whole audio and video areas.
6) Select page: C, address: 47, decrease the data, and read the data D_2 when the CH1 pulse is set to the whole audio and video areas.
7) Obtain the average value of D_1 and D_2, and take it as D_3.
8) Select page: C, address: 47, set data: D_3, and press the PAUSE button of the adjusting remote commander.
9) Select page: C, address: 4B, set data: 0E, and press the PAUSE button of the adjusting remote commander.
10) Select page: C, address: 5A, set data: 8C, and press the PAUSE button of the adjusting remote commander.
11) Select page: 0, address: 01, and set data: 00.
12) After completing the adjusting, perform "5. AEQ Adjustment".

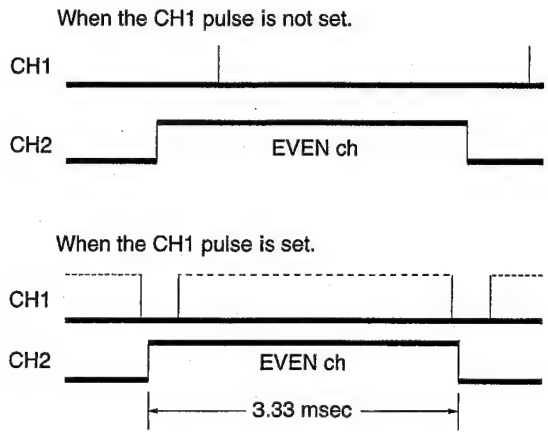


Fig. 5-3-6.

4. AGC Center Level Adjustment (RP-228 Board)

Mode	Recording/playback
Signal	Color bar
Measurement Point	CH1: Pin ⑱ of CN775 (C1ERP) CH2: Pin ⑥ of CN775 (JSWP)
Measuring Instrument	Oscilloscope Trigger source: CH2
Adjustment Page	C
Adjustment Address	44

Adjusting method:

1) Record color bar signal for two minutes on any tape.
2) Select page: 0, address: 01, and set data: 01.
3) Write the following data in page: C, addresses: 40 to 44, 4B, 5A.
   (To write the data, press the PAUSE button of the adjusting remote commander each time data is set.)
   Page: C, address: 40, data: C0
   Page: C, address: 41, data: C0
   Page: C, address: 42, data: 90
   Page: C, address: 43, data: 90
   Page: C, address: 44, data: 90
   Page: C, address: 4B, data: 80
   Page: C, address: 5A, data: 00
4) Playback the part recorded with the color bar signal.
5) Select page: C, address: 44, increase the data, and read the data D_1 when the CH1 pulse is set to the whole audio and video areas.
6) Select page: C, address: 44, decrease data, and read the data D_2 when the CH1 pulse is set to the whole audio and video areas.
7) Obtain the average value of D_1 and D_2, and take it as D_3.
8) Select page: C, address: 44, set data: D_3, and press the PAUSE button of the adjusting remote commander.
9) Select page: C, address: 4B, set data: 00, and press the PAUSE button of the adjusting remote commander.
10) Select page: C, address: 5A, set data: 8C, and press the PAUSE button of the adjusting remote commander.
11) Select page: 0, address: 01, and set data: 00.
12) After completing the adjusting, perform "5. AEQ Adjustment".

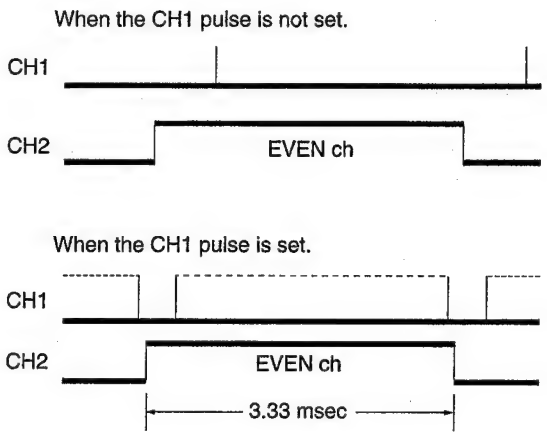


Fig. 5-3-7.

5. AEQ Adjustment (RP-228 Board)

Mode	Recording/playback
Signal	Arbitrary
Measurement Point	Pin ⑧ of CN775 (RF MONITOR) (Note 1)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	40, 41, 42, 43, 5A

Note 1: Connect a 75 Ω resistor between Pin ⑧ and ⑦ (GND) of CN 775.
75 Ω resistor (Parts code: 1-247-804-11)
Note 2: Use the DVM60ME tape or equivalents.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: C, address: 4B, set data: 80, and press the PAUSE button of the adjusting remote commander.
3) Write data in page: C, addresses: 40 to 43, and 5A as shown in the following table.
   (To write the data, press the PAUSE button of the adjusting remote commander each time data is set.)

Address	Data
40	C0
41	C0
42	90
43	90
5A	00

4) Record color bar signal for one minute from the tape top.
5) Rewind the tape, and play back the part recorded.
6) When the RF output stabilizes, select page: 3, address: 01, and set data: 07, and press the PAUSE button of the adjusting remote commander.
7) About 20 to 30 seconds after pressing the PAUSE button, select page: 3, address: 02, and check that the data changes from "07" to "00".
8) Select page: 3, address: 03, and check that the data is the following value.
   When "00" : Normal
   When "01" : EVENch is faulty
   When "02" : ODDch is faulty
   When "03" : EVENch and ODDch are faulty
   Perform the following procedure only when "00" is displayed.
9) Select page: 3, address: 04 to 07, read the data, and take the values as D_{04}, D_{05}, D_{06}, and D_{07}.
10) Select page: C, address: 40, set data: D_{04}, and press the PAUSE button of the adjusting remote commander.
11) Select page: C, address: 42, set data: D_{05}, and press the PAUSE button of the adjusting remote commander.
12) Select page: C, address: 41, set data: D_{06}, and press the PAUSE button of the adjusting remote commander.
13) Select page: C, address: 43, set data: D_{07}, and press the PAUSE button of the adjusting remote commander.
14) Select page: C, address: 5A, set data: 8C, and press the PAUSE button of the adjusting remote commander.
15) Select page: C, address: 4B, set data: 00, and press the PAUSE button of the adjusting remote commander.
16) Select page: 0, address: 01, and set data: 00.

6. PLL Capture Range Adjustment (RP-228 Board)

Mode	Recording/Playback
Signal	Color bar
Measurement Point	CH1: Pin ⑱ of CN775 (C1ERP) CH2: Pin ⑥ of CN775 (JSWP)
Measuring Instrument	Oscilloscope Trigger source: CH2
Adjustment Page	C
Adjustment Address	46

Adjusting method:

1) Record color bar signal for two minutes on any tape.
2) Select page: 0, address: 01, and set data: 01.
3) Write the following data in page: C, addresses: 4B and 5A.
   (To write the data, press the PAUSE button of the adjusting remote commander each time data is set.)
   Page: C, address: 4B, data: 80
   Page: C, address: 5A, data: 00
4) Playback the part recorded with the color bar signal.
5) Select page: C, address: 46, set data: 80, and press the PAUSE button of the adjusting remote commander.
6) Select page: C, address: 46, set the data to "60", and check that the pulse is not set at the audio area head of the ERRP waveform's ODDch of the oscilloscope (CH1).
7) Select page: C, address: 46, set the data to "A0", and check that the pulse is not set at the audio area head of the C1ERP waveform's ODDch of the oscilloscope (CH1).
   After confirming steps 6) and 7), select page: C, address: 46, set data: 80 again and proceed to step 12).
8) If the pulse is set in steps 6) and 7), select page: C, address: 46, increase the data from "80", and read the data D_1 when the pulse is set at the audio area head of CH1.
9) Select page: C, address: 46, decrease the data from "80", and read the data D_2 when the pulse is set at the audio area head of CH1.
10) Obtain the average value of D_1 and D_2, and take it as D_3.
11) Select page: C, address: 46, set data: D_3, and press the PAUSE button of the adjusting remote commander.
12) Select page: C, address: 4B, set data: 00, and press the PAUSE button of the adjusting remote commander.
13) Select page: C, address: 5A, set data: 8C, and press the PAUSE button of the adjusting remote commander.
14) Select page: 0, address: 01, and set data: 00.

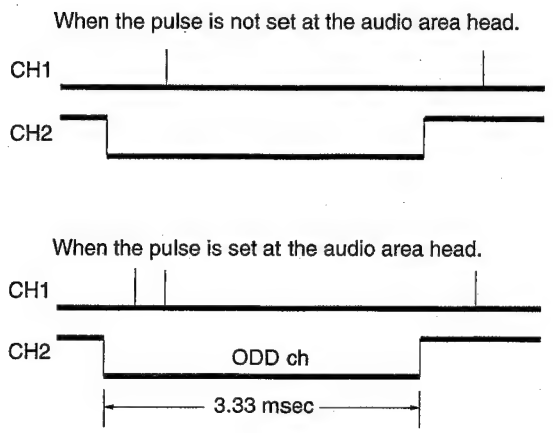


Fig. 5-3-8.

7. IC774 41.85 MHz VCO Check (RP-228 Board)

Mode	E-E
Signal	Arbitrary
Measurement Point	Page: 3, address: 39 on displayed data of adjusting remote commander
Measuring Instrument	
Adjustment Value	"37" to "C9" (0.6 to 2.2 Vdc)

Checking method:

1) Select page: 3, address: 39, and check that the displayed data is "37" to "C9".

3-5-2. JC-19 Board Adjustments

1. A/D Converter Reference Voltage Adjustment 1 (JC-19 Board)

Mode	E-E
Signal	Arbitrary
Measurement Point	Pin ⑤ of IC013 (CL061)
Measuring Instrument	Digital voltmeter
Adjusting Element	RV001
Specified Value	A = 2.83 ± 0.01 Vdc

Adjusting method:

1) Set the VRT voltage (A) to the specified value using RV001.

2. A/D Converter Reference Voltage Adjustment 2 (JC-19 Board)

Mode	E-E
Signal	Arbitrary
Measurement Point	Pin ③ of IC013 (CL062)
Measuring Instrument	Digital voltmeter
Adjusting Element	RV002
Specified Value	A = 0.96 ± 0.01 Vdc

Adjusting method:

1) Set the VBT voltage (A) to the specified value using RV002.

3. Y Signal Clamp Reference Voltage Adjustment (JC-19 Board)

Mode	E-E
Signal	Color bar
Measurement Point	Pin ⑧ of IC011 (CL054)
Measuring Instrument	Digital voltmeter
Adjusting Element	RV011
Specified Value	A = 1.150 ± 0.005 Vdc

Connection: Connect a jumper wire between Pin ⑥ of IC018 (CL150) and GND.

Adjusting method:

1) Set the Y signal clamp reference voltage (A) to the specified value using RV011.

4. CR Signal Clamp Reference Voltage Adjustment (JC-19 Board)

Mode	E-E
Signal	Color bar
Measurement Point	Pin ⑧ of IC010 (CL052)
Measuring Instrument	Digital voltmeter
Adjusting Element	RV010
Specified Value	A = 1.900 ± 0.005 Vdc

Connection: Connect a jumper wire between Pin ⑥ of IC018 (CL150) and GND.

Adjusting method:

1) Set the CR signal clamp reference voltage (A) to the specified value using RV010.

5. CB Signal Clamp Reference Voltage Adjustment (JC-19 Board)

Mode	E-E
Signal	Color bar
Measurement Point	Pin ⑧ of IC009 (CL053)
Measuring Instrument	Digital voltmeter
Adjusting Element	RV012
Specified Value	A = 1.900 ± 0.005 Vdc

Connection: Connect a jumper wire between Pin ⑥ of IC018 (CL150) and GND.

Adjusting method:

1) Set the CB signal clamp reference voltage (A) to the specified value using RV012.

6. Playback Y Signal Level Adjustment (JC-19 Board)

Mode	Recording
Signal	DV input (Note 1)
Measurement Point	Pin ⑧ of CN104 or pin ㉓ of CN102 on VA-102 board
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	36
Specified Value	A = 0.43 ± 0.04 V (NTSC) A = 0.41 ± 0.04 V (PAL)

Note 1: Generate color bar signal with NTSC: DCR-VX1000/ PAL: DCR-VX1000E and enter it to the DV terminal. (How to generate color bars: Connect the adjusting remote commander to the NTSC: DCR-VX1000/PAL: DCR-VX1000E, select page: 5, address: 02, and set data: 09. After adjustment, be sure to return the data to "00")

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 36, change data, and adjust the Y signal level (A) to the specified value.
3) Select page: 0, address: 01, and set data: 00.

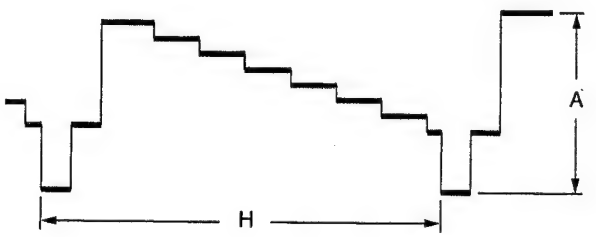


Fig. 5-3-9.

7. Playback CR Signal Level Adjustment (JC-19 Board)

Mode	Recording
Signal	DV input (Note 1)
Measurement Point	Pin ⑩ of CN104 or pin ㉑ of CN102 on VA-102 board
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	34
Specified Value	A = 540 ± 10 mV

Note 1: Generate color bar signal with NTSC: DCR-VX1000/ PAL: DCR-VX1000E and enter it to the DV terminal. (How to generate color bars: Connect the adjusting remote commander to the NTSC: DCR-VX1000/PAL: DCR-VX1000E, select page: 5, address: 02, and set data: 09. After adjustment, be sure to return the data to "00")

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 34, change data, and adjust the CR signal level (A) to the specified value.
3) Select page: 0, address: 01, and set data: 00.

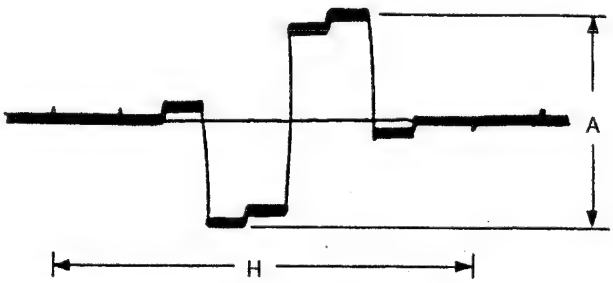


Fig. 5-3-10.

8. Playback CB Signal Level Adjustment (JC-19 Board)

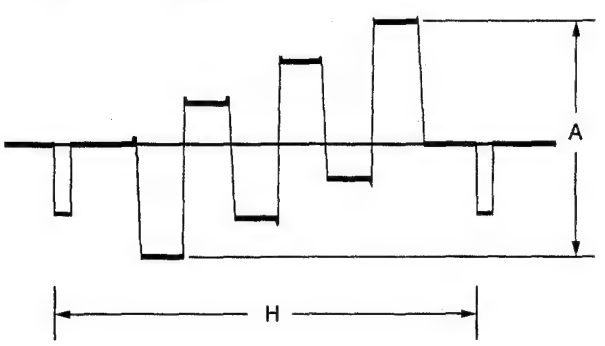
Mode	Recording
Signal	DV input (Note 1)
Measurement Point	Pin ⑫ of CN104 or pin ⑲ of CN102 on VA-102 board
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	35
Specified Value	A = 390 ± 10 mV

Note 1: Generate color bar signal with NTSC: DCR-VX1000/ PAL: DCR-VX1000E and enter it to the DV terminal. (How to generate color bars: Connect the adjusting remote commander to the NTSC: DCR-VX1000/PAL: DCR-VX1000E, select page: 5, address: 02, and set data: 09. After adjustment, be sure to return the data to "00")

Adjusting method:

1) Select page: 0, address: 01, and set data: 00.
2) Select page: D, address: 35, change data, and adjust the CB signal level (A) to the specified value.
3) Select page: 0, address: 01, and set data: 00.

For NTSC model



For PAL model

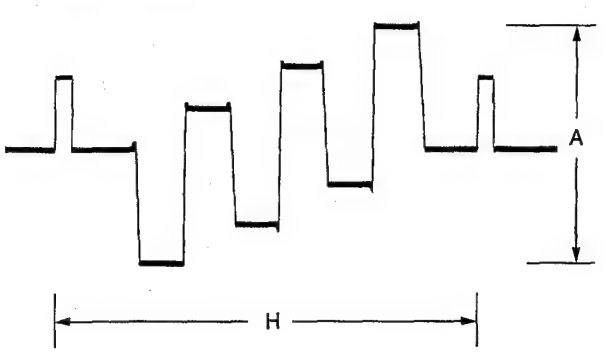


Fig. 5-3-11.

9. IC422 27MHz XTAL fo Adjustment (JC-19 Board)

Mode	Playback
Signal	Arbitrary tape
Measurement Point	Pin ㉘ of IC442 (CL479)
Measuring Instrument	Frequency counter
Adjustment Page	D
Adjustment Address	33
Specified Value	f = 13500000 ± 100 Hz

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 33, change data, and adjust the clock frequency (f) to the specified value.
3) Press the PAUSE button on the adjusting remote commander.
4) Select page: 0, address: 01, and set data: 00.

10. AFC Preliminary Adjustment (JC-19 Board)

Mode	Recording
Signal	Color bar
Measurement Point	Pin ⑨ of IC205 (CL214)
Measuring Instrument	Digital voltmeter
Adjusting Element	CT201
Specified Value	A = 1.9 ± 0.5 Vdc

Adjusting method:

1) Set the DC voltage (A) to the specified value using CT201.

11. AFC Picture Frame Adjustment (JC-19 Board)

Mode	Recording
Signal	Color bar (Video input) (Note 1)
Measurement Point	CH1: Pin ㉑ of IC017 (CL051) CH2: Pin ㉘ of IC205 (CL222)
Measuring Instrument	Oscilloscope
Adjusting Element	RV201
Specified Value	T = 110 ± 10 nsec

Note 1: Set "VIDEO" mode with the INPUT SELECT button on the front panel.

Adjusting method:

1) Set the time difference (T) between the H SYNC falling and AFH rising to the specified value using RV201.

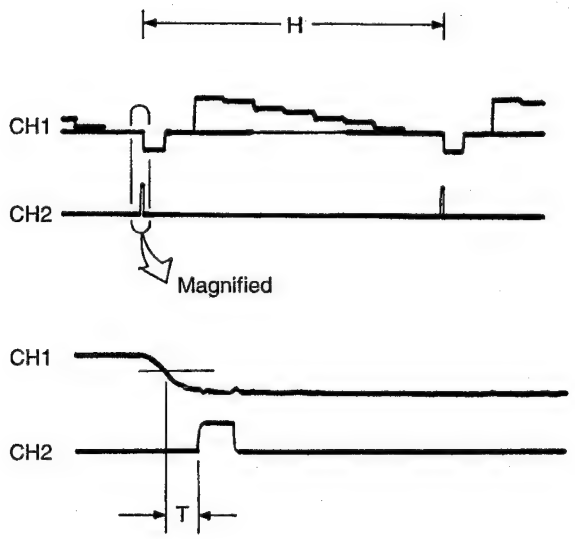


Fig. 5-3-12.

12. AFC Adjustment (JC-19 Board)

Mode	Recording
Signal	Color bar
Measurement Point	Pin ⑨ of IC205 (CL214)
Measuring Instrument	Digital voltmeter
Adjusting Element	CT201
Specified Value	A = 1.80 ± 0.05 Vdc

Adjusting method:

1) Set the DC voltage (A) to the specified value using CT201.

3-5-3. VA-102 Board Adjustments

1. AGC Adjustment (VA-102 Board)

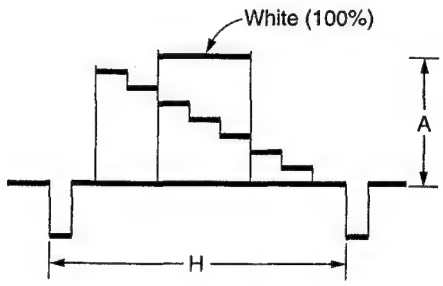
Mode	E-E
Signal	Color bar (VIDEO input) (Note 1)
Measurement Point	Pin ⑭ of IC205 (CL220)
Measuring Instrument	Oscilloscope
Adjustment Element	RV202
Specified Value	A = 1.428 ± 0.02 V (NTSC) A = 1.400 ± 0.02 V (PAL)

Note 1: Set "VIDEO" mode with the INPUT SELECT button on the front panel.

Adjusting method:

1) Set the Y signal level (A) to the specified value using RV202.

For NTSC model



For PAL model

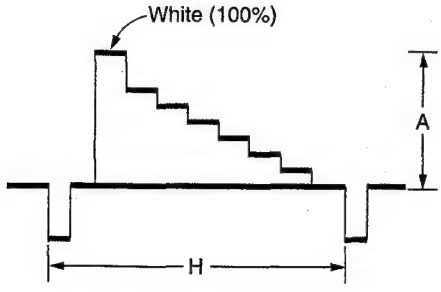


Fig. 5-3-13.

2. Analog E-E VIDEO Signal Output Level Adjustment (VA-102 Board)

Mode	E-E
Signal	Color bar (S VIDEO input) (Note 1)
Measurement Point	Pin ⑨ of IC401 (CL434)
Measuring Instrument	Oscilloscope
Adjustment Element	RV401, RV404
Specified Value	A = 0.714 ± 0.01 V (NTSC) A = 0.700 ± 0.01 V (PAL) B = 280 ± 10 mV (NTSC) B = 300 ± 10 mV (PAL)

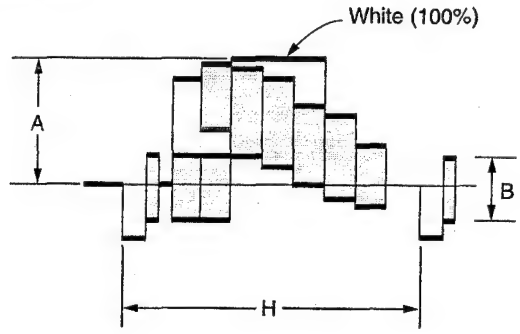
Note 1: Set "S VIDEO" mode with the INPUT SELECT button on the front panel.

Note 2: Terminate the video output terminal using a 75 Ω resistor.
75 Ω resistor (Parts code: 1-247-804-11)

Adjusting method:

1) Set the Y signal level (A) to the specified value using RV401.
2) Set the burst signal level (B) to the specified value using RV404.

For NTSC model



For PAL model

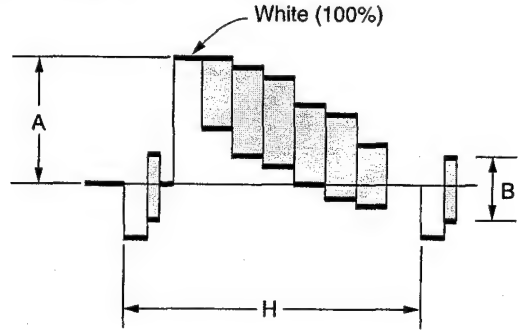


Fig. 5-3-14.

3. Analog E-E Y Signal Output Level Check (VA-102 Board)

Mode	E-E
Signal	Color bar (S VIDEO input) (Note 1)
Measurement Point	Pin ⑬ of CN401 (CL436)
Measuring Instrument	Oscilloscope
Specified Value	A = 0.714 ± 0.02 V (NTSC) A = 0.700 ± 0.02 V (PAL)

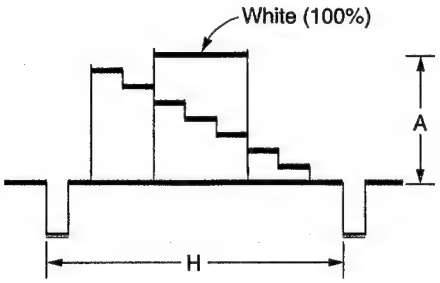
Note 1: Set "S VIDEO" mode with the INPUT SELECT button on the front panel.

Note 2: Terminate the Y signal terminal of the S video output terminal using a 75 Ω resistor.
75 Ω resistor (Parts code: 1-247-804-11)

Checking method:

1) Check that the Y signal level (A) is the specified value.

For NTSC model



For PAL model

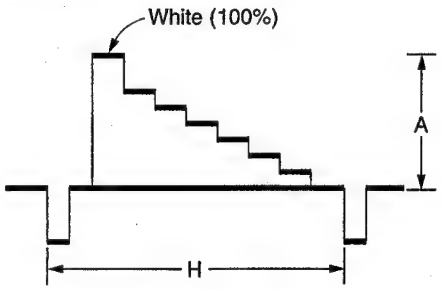


Fig. 5-3-15.

4. Analog E-E Chroma Signal Output Level Check (VA-102 Board)

Mode	E-E
Signal	Color bar (S VIDEO input) (Note 1)
Measurement Point	Pin ⑪ of IC401 (CL435)
Measuring Instrument	Oscilloscope
Specified Value	A = 286 ± 20 mV (NTSC) A = 300 ± 20 mV (PAL)

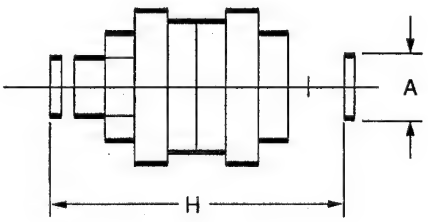
Note 1: Set "S VIDEO" mode with the INPUT SELECT button on the front panel.

Note 2: Terminate the Chroma signal terminal of the S video output terminal using a 75 Ω resistor.
75 Ω resistor (Parts code: 1-247-804-11)

Checking method:

1) Check that the burst signal level (A) is the specified value.

For NTSC model



For PAL model

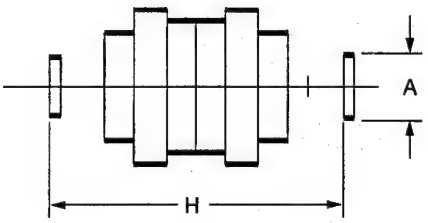


Fig. 5-3-16.

5. Decoder VXO Freerunning Frequency Adjustment (VA-102 Board)

Mode	E-E
Signal	Color bar (S VIDEO input) (Note 2) (Chroma signal OFF)
Measurement Point	TP201 (CL210)
Measuring Instrument	Frequency coutner
Adjustment Element	CT201
Specified Value	f = 3579545 ± 30 Hz (NTSC) f = 4433618 ± 20 Hz (PAL)

Note 1: Connect the frequency counter via high input impedance equipment such as an oscilloscope.

Note 2: Set "S VIDEO" mode with the INPUT SELECT button on the front panel.

Adjusting method:

1) Set the VXO OSC frequency (f) to the specified value using CT201.

6. Video Input Y/C Separation Adjustment (VA-102 Board)

(1) Y Signal Output Level Adjustment

Mode	E-E
Signal	Color bar (VIDEO input) (Note 1)
Measurement Point	Pin ① of IC202 (CL202)
Measuring Instrument	Oscilloscope
Adjustment Element	RV203
Specified Value	A= 0.714 ± 0.01 V (NTSC) A= 0.700 ± 0.01 V (PAL)

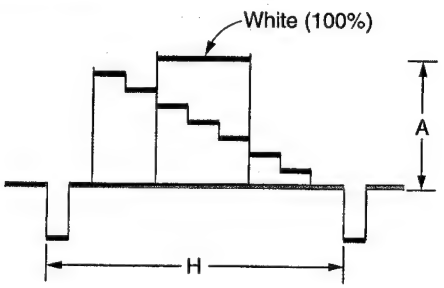
Note 1: Set "VIDEO" mode with the INPUT SELECT button on the front panel.

Note 2: Terminate the video output terminal using a 75 Ω resistor.
75 Ω resistor (Parts code: 1-247-804-11)

Adjusting method:

1) Set the Y signal level (A) to the specified value using RV203.

For NTSC model



For PAL model

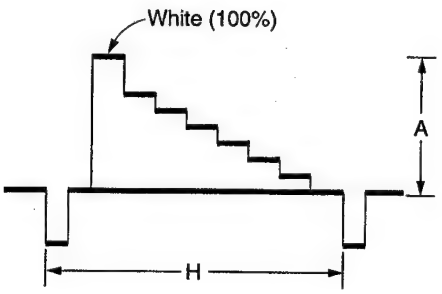


Fig. 5-3-17.

(2) Chroma Signal Output Level Adjustment

Mode	E-E
Signal	Color bar (VIDEO input) (Note 1)
Measurement Point	Emitter of Q202 (CL203)
Measuring Instrument	Oscilloscope
Adjustment Element	RV201
Specified Value	A = 286 ± 10 mV (NTSC) A = 300 ± 10 mV (PAL)

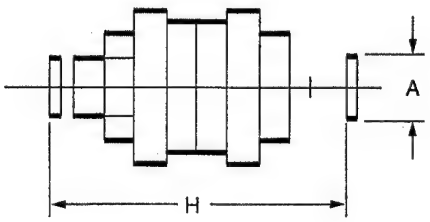
Note 1: Set "VIDEO" mode with the INPUT SELECT button on the front panel.

Note 2: Terminate the video output terminal using a 75 Ω resistor.
75 Ω resistor (Parts code: 1-247-804-11)

Adjusting method:

1) Set the burst signal level (A) to the specified value using RV201.

For NTSC model



For PAL model

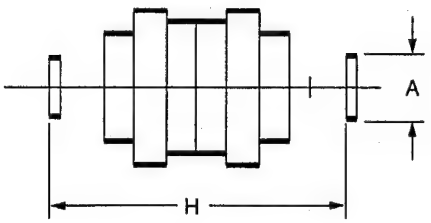


Fig. 5-3-18.

7. Decoder HUE Adjustment (VA-102 Board)

Mode	E-E
Signal	Color bar (S VIDEO input) (Note 1)
Measurement Point	Pin ⑧ of IC102 (CL144)
Measuring Instrument	Oscilloscope
Adjustment Element	RV207
Specified Value	A = B = C

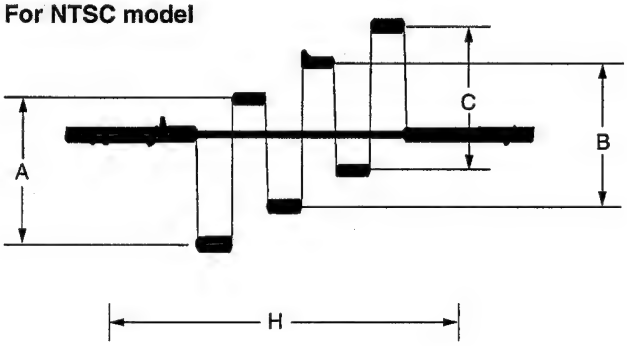
Note 1: Set data: 00 to page: 5, address: 38

Note 2: Set "S VIDEO" mode with the INPUT SELECT button on the front panel.

Adjusting method:

1) Set the amplitude (A), (B), (C) to the same level using RV207.

For NTSC model



For PAL model

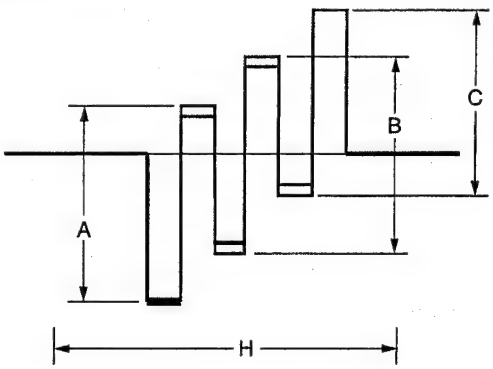


Fig. 5-3-19.

8. REC Y Level Adjustment (VA-102 Board)

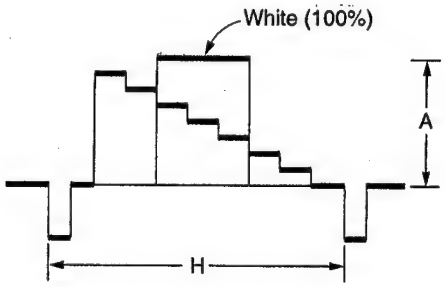
Mode	E-E
Signal	Color bar (VIDEO input) (Note 1)
Measurement Point	Pin ⑫ of IC102 (CL142)
Measuring Instrument	Oscilloscope
Adjustment Element	RV205
Specified Value	A = 1.55 ± 0.02 V

Note 1: Set "VIDEO" mode with the INPUT SELECT button on the front panel.

Adjusting method:

1) Set the Y signal level (A) to the specified value using RV205.

For NTSC model



For PAL model

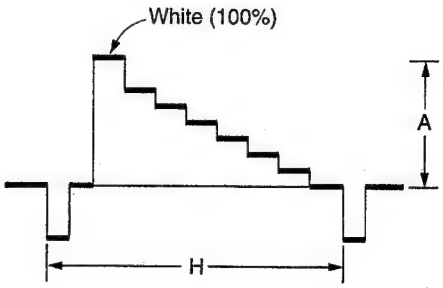


Fig. 5-3-20.

9. REC CR Level Adjustment (VA-102 Board)

Mode	E-E
Signal	Color bar (VIDEO input) (Note 1)
Measurement Point	Pin ⑩ of IC102 (CL143)
Measuring Instrument	Oscilloscope
Adjustment Element	RV204
Specified Value	A = 1.25 ± 0.02 V (NTSC) A = 1.20 ± 0.02 V (PAL)

Note 1: Set "VIDEO" mode with the INPUT SELECT button on the front panel.

Adjusting method:

1) Set the CR signal level (A) to the specified value using RV204.

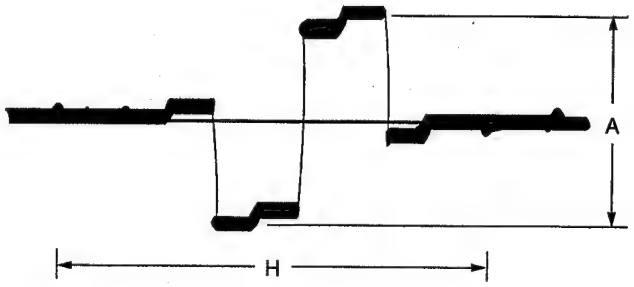


Fig. 5-3-21.

10. REC CB Level Adjustment (VA-102 Board)

Mode	E-E
Signal	Color bar (VIDEO input) (Note 1)
Measurement Point	Pin ⑧ of IC102 (CL144)
Measuring Instrument	Oscilloscope
Adjustment Element	RV206
Specified Value	A = 1.20 ± 0.02 V

Note 1: Set "VIDEO" mode with the INPUT SELECT button on the front panel.

Adjusting method:

1) Set the CB signal level (A) to the specified value using RV206.

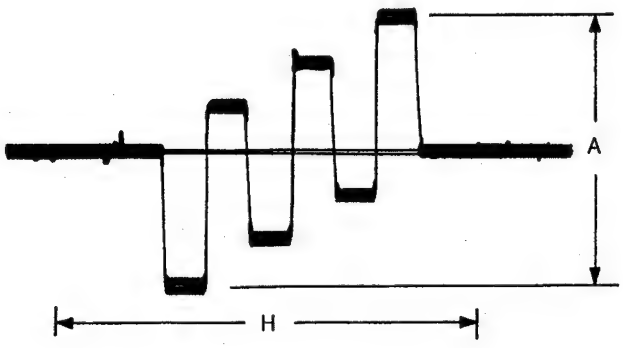


Fig. 5-3-22.

11. Encoder Freerunning Frequency Adjustment (VA-102 Board)

Mode	E-E
Signal	Color bar (S VIDEO input) (Note 2)
Measurement Point	TP401 (CL426)
Measuring Instrument	Frequency coutner
Adjustment Element	CT401
Specified Value	f = 14318182 ± 100Hz (NTSC) f = 17734475 ± 100 Hz (PAL)

Note 1: Connect the frequency counter via high input impedance equipment such as an oscilloscope.

Note 2: Set "S VIDEO" mode with the INPUT SELECT button on the front panel.

Adjusting method:

1) Set the oscillation frequency (f) to the specified value using CT401.

Measurement Point

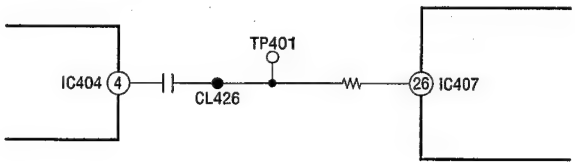


Fig. 5-3-23.

12. Playback Y Level Check (VA-102 Board)

Mode	Recording
Signal	DV input (Note 1)
Measurement Point	Pin ⑬ of CN401 (CL436)
Measuring Instrument	Oscilloscope
Specified Value	A = 0.83 ± 0.02 V (NTSC) A = 0.825 ± 0.02 V (PAL)

Note 1: Generate color bar signal with NTSC: DCR-VX1000/ PAL: DCR-VX1000E and enter it to the DV terminal. (How to generate color bars: Connect the adjusting remote commander to the NTSC: DCR-VX1000/PAL: DCR-VX1000E, and set data: 09 to page: 5, address: 02. After adjustment, be sure to return the data to "00".)

Note 2: Perform this check after confirming that the specified value in the following adjustment of the JC-19 board has been satisfied.
1. Playback Y Signal Level Adjustment.

Checking method:

1) Check that the white (75%) signal level (A) is the specified value.

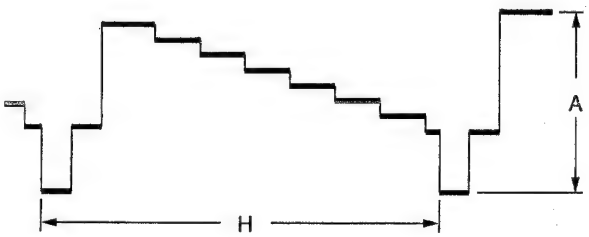


Fig. 5-3-24.

13. Playback Chroma Level Adjustment (VA-102 Board)

Mode	Recording
Signal	DV input (Note 1)
Measurement Point	Pin ⑪ of CN401 (CL435)
Measuring Instrument	Oscilloscope
Adjustment Element	RV406
Specified Value	A = 670 ± 10 mV (NTSC) A = 660 ± 10 mV (PAL)

Note 1: Generate color bar signal with NTSC: DCR-VX1000/ PAL: DCR-VX1000E and enter it to the DV terminal. (How to generate color bars: Connect the adjusting remote commander to the NTSC: DCR-VX1000/PAL: DCR-VX1000E, and set data: 09 to page: 5, address: 02. After adjustment, be sure to return the data to "00".)

Note 2: Perform this adjustment after confirming that the specified value in the following adjustment of the JC-19 board has been satisfied.
1. Playback CR Signal Level Adjustment.
2. Playback CB Signal Level Adjustment.

Adjusting method:

1) Set the red signal level (A) to the specified value using RV406.

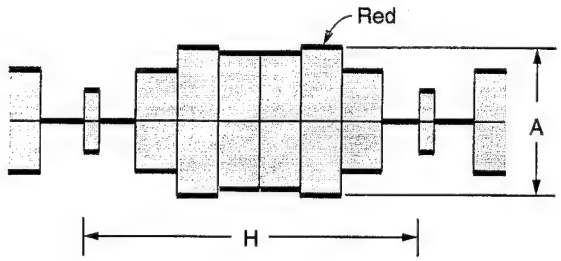


Fig. 5-3-25.

14. Playback Burst Level Adjustment (VA-102 Board) (PAL model only)

Mode	Recording
Signal	DV input (Note 1)
Measurement Point	Pin ⑪ of CN401 (CL435)
Measuring Instrument	Oscilloscope
Adjustment Element	RV402
Specified Value	A = 300 ± 10 mV (PAL)

Note 1: Generate color bar signal with NTSC: DCR-VX1000/ PAL: DCR-VX1000E and enter it to the DV terminal. (How to generate color bars: Connect the adjusting remote commander to the NTSC: DCR-VX1000/PAL: DCR-VX1000E, and set data: 09 to page: 5, address: 02. After adjustment, be sure to return the data to "00".)

Note 2: Perform this adjustment after confirming that the specified value in the following adjustment of the JC-19 board has been satisfied.
1. Playback CR Signal Level Adjustment.
2. Playback CB Signal Level Adjustment.

Adjusting method:

1) Set the burst signal level (A) to the specified value using RV402.

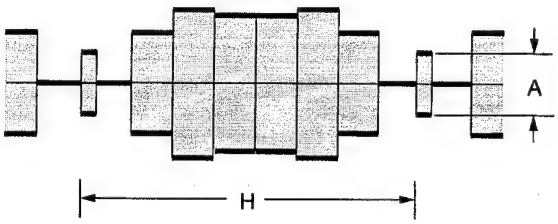


Fig. 5-3-26.

3-5-4. General Adjustments

1. Y Output Level Adjustment (JC-19 Board)

Mode	E-E
Signal	Color bar (DV input) (Note 1)
Measurement Point	Video output terminal
Measuring Instrument	Oscilloscope
Adjustment Element	page: D, address: 36
Specified Value	A = 0.83 ± 0.01 V (NTSC) A = 0.823 ± 0.01 V (PAL)

Note 1: Generate color bar signal with NTSC: DCR-VX1000/ PAL: DCR-VX1000E and enter it to the DV terminal. (How to generate color bars: Connect the adjusting remote commander to the NTSC: DCR-VX1000/PAL: DCR-VX1000E, and set data: 09 to page: 5, address: 02. After adjustment, be sure to return the data to "00".

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 36, change the data, adjust the Y signal level (A) to the specified value.
1) Select page: 0, address: 01, and set data: 00.

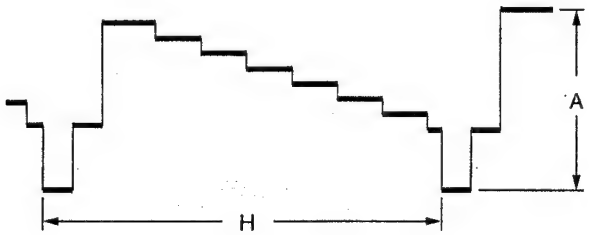


Fig. 5-3-27.

2. Encoder R-Y Input Level Adjustment (JC-19 Board)

Mode	E-E
Signal	Color bar (DV input) (Note 1)
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Adjustment Element	page: D, address: 34
Specified Value	Phase: 104 ± 2° Gain : 95 ± 5%

Note 1: Generate color bar signal with NTSC: DCR-VX1000/ PAL: DCR-VX1000E and enter it to the DV terminal. (How to generate color bars: Connect the adjusting remote commander to the NTSC: DCR-VX1000/PAL: DCR-VX1000E, and set data: 09 to page: 5, address:02. After adjustment, be sure to return the data to "00".

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Adjust the burst luminance point to the specified position using the PHASE and GAIN knobs of the vectorscope.
3) Select page: D, address: 34, change the data, adjust a red luminance point to the specified position.
4) Select page: 0, address: 01, and set data: 00.

For NTSC model

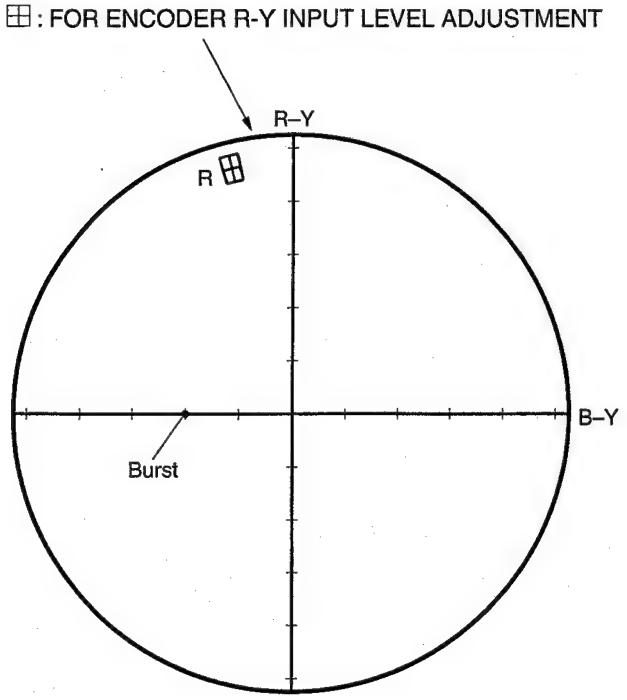


Fig. 5-3-28.

For PAL model

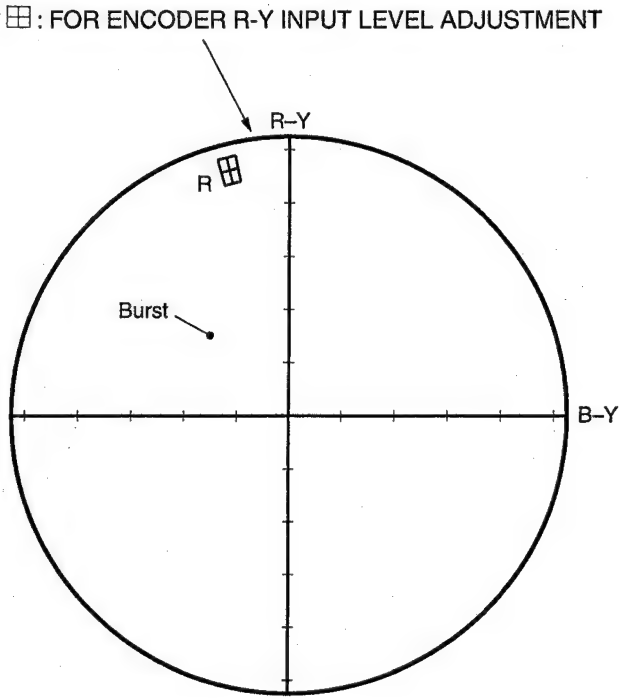


Fig. 5-3-29.

3. Encoder B-Y Input Level Adjustment (JC-19 Board)

Mode	E-E
Signal	Color bar (DV input) (Note 1)
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Adjustment Element	page: D, address: 35
Specified Value	Phase: 348 ± 2° Gain : 66 ± 5%

Note 1: Generate color bar signal with NTSC: DCR-VX1000/ PAL: DCR-VX1000E and enter it to the DV terminal. (How to generate color bars: Connect the adjusting remote commander to the NTSC: DCR-VX1000/PAL: DCR-VX1000E, and set data: 09 to page: 5, address:02. After adjustment, be sure to return the data to "00".

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Adjust the burst luminance point to the specified position using the PHASE and GAIN knobs of the vectorscope.
3) Select page: D, address: 35, change the data, adjust a blue luminance point to the specified position (inside of thick frame).
4) Select page: 0, address: 01, and set data: 00.

4. Decoder HUE Input Adjustment (JC-19 Board)

Mode	E-E
Signal	Color bar (S VIDEO input) (Note 1)
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Adjustment Element	RV207
Specified Value	Phase: 104 ± 1° Gain : 95 ± 5%

Note 1: Set "S VIDEO" mode with the INPUT SELECT button on the front panel.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 2, address: 10, and set data: 20.
3) Adjust the burst luminance point to the specified position using the PHASE and GAIN knobs of the vectorscope.
4) Adjust RV107 so that a red luminance point comes to the specified position (inside of thick frame). At this time, confirm that other color luminance points are inside each phase specified frame (± 2).
5) Select page: 2, address: 10, and set data: 00.
4) Select page: 0, address: 01, and set data: 00.

Note: When a red luminance point and a blue luminance point are not at the specified positions, adjust RV204 and RV206 so that they come to the specified positions respectively.

For NTSC model

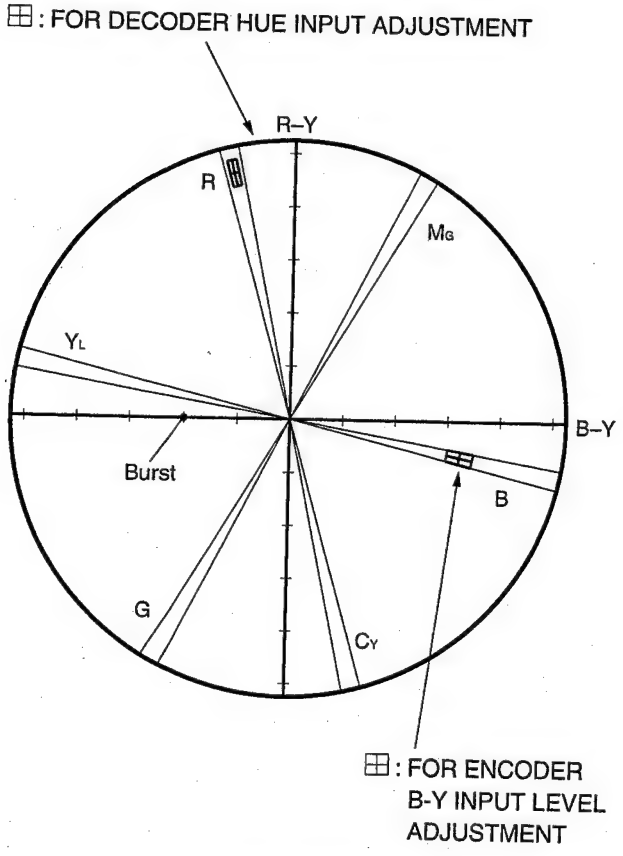


Fig. 5-3-30.

For PAL model

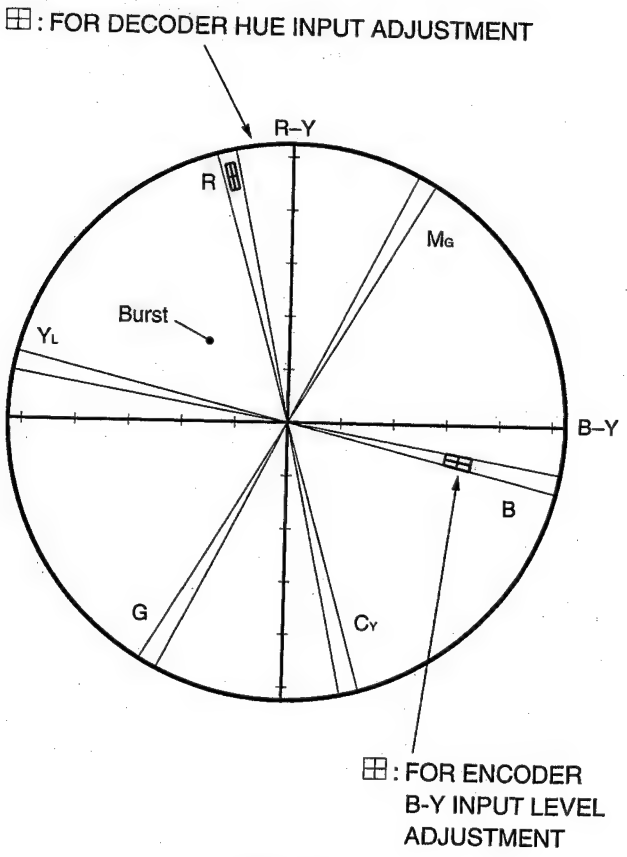


Fig. 5-3-31.

5. Battery Down Adjustment and Confirmation

Mode	Stop
Signal	Any
Test point	Displayed data on page 5, address 2A (LCD display of the adjusting remote commander)
Measuring Instrument	Adjusting remote commander
Adjustment page	E
Adjustment address	1D, 1E, 1F

Note 1: Make sure that the BEEP on the Menu screen is set to "ON".

Connection of Equipment:
Connect a regulated power supply and a digital voltmeter to the DC IN terminal.

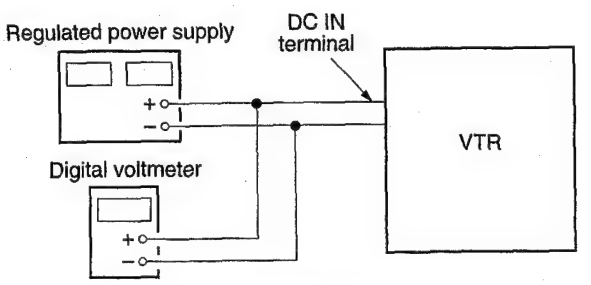


Fig. 5-3-32.

Adjusting Method:

1) Adjust the output voltage of regulated power supply so that a digital voltmeter displays 11.0 ± 0.05 V.
2) Select page: 5, address: 2A, and read displayed data on the adjuting remote commander, and assume it as D_0.
3) Select page: E, address: 1D, set data: D_0, and press the PAUSE button on the adjusting remote commander.
4) Convert "D_0" read in 2) to decimal notation, and obtain D_0'.
5) Calculate D_1', D_2' using the following equations (decimal notation calculation).
   $D_1' = D_0' - 6$
   $D_2' = D_0' - 12$
6) Convert D_1' to hexadecimal notation, and obtain D_1.
7) Select page: E, address: 1E, set data: D_1, and press the PAUSE button on the adjusting remote commander.
8) Convert D_2' to hexadecimal notation, and obtain D_2.
9) Select page: E, address: 1F, set data: D_2, and press the PAUSE button on the adjusting remote commander.
10) Confirm the display and operation of the fluorescent display tube, when the voltage input from DC IN terminal is lowered from 12 V.
    Input of DC 12 V : Normal operation
    Input of DC 10.8 V : Beep sounds and "dc Lo" is displayed.
    Input of DC 10.3 V : Beep sounds and the standby mode is activated after 2 seconds.
11) Further lower the voltage, and check the voltage when STBY indicator (red LED) turns off.
    Specification: The power relay must turns off when Vdc = 9.0 V – 9.5 V.
12) On the contrary, raise the voltage, and check the voltage when STBY indicator (red LED) turns on.
    Specification: The power relay must turns on when Vdc = 10.5 V – 11.0 V.

3-5-5. BIST Check

1. Playback System Check (JC-19, RP-228 Boards)

1) Connect the adjusting remote commander to the LANC terminal, and turn the HOLD switch ON.
2) Playback the BIST check tape.

IC411(D1) Playback System Check

3) Select page: 4, address: 11, set data: 04, and press the PAUSE button.
4) Select page: 4, address: 11, set data: 00, and press the PAUSE button.
5) Select page: 4, address: 13, set data: 03, and press the PAUSE button.
   (Data automatically returns to "00")
6) If IC411 (D1) → IC401 (U1) playback system is normal, the following data are displayed on page: 4, addresses: 14, 15.

Page	Address	Data
4	15	E5
4	14	11

7) If IC411(D1) → IC701 (IND1) playback system is normal, the following data are displayed on page: 4, addresses: 16, 17.

Page	Address	Data
4	17	C0 or BA
4	16	6E or 04

8) If IC411(D1) → IC805 (A1) playback system is normal, the following data are displayed on page: 4, addresses: 18, 19.

Page	Address	Data
4	19	33 or B2
4	18	59 or 19

IC805 (A1) Playback System Check

9) Select page: 4, address: 11, set data: 10, and press the PAUSE button.
10) Select page: 4, address: 11, set data: 00, and press the PAUSE button.
11) Select page: 4, address: 13, set data: 04, and press the PAUSE button.
    (Data automatically returns to "00")
12) If IC805 (A1) playback system is normal, the following data are displayed on page: 4, addresses: 14, 15.

Page	Address	Data
4	15	7B
4	14	B5

IC401 (U1) Playback System Check

13) Select page: 4, address: 11, set data: 08, and press the PAUSE button.
14) Select page: 4, address: 42, set data: 01, and press the PAUSE button.
15) Select page: 4, address: 13, set data: 07, and press the PAUSE button.
    (Data automatically returns to "00")
16) Select page: 4, address: 42, set data: 00, and press the PAUSE button.
17) Select page: 4, address: 11, set data: 00, and press the PAUSE button.
18) If IC401 (U1) → IC200 (S1) playback system is normal, the following data are displayed on page: 4, addresses: 14, 15.

Page	Address	Data
4	15	1E
4	14	F2

19) If IC411 (D1) → IC401 (U1) playback system is normal, the following data are displayed on page: 4, addresses: 16, 17.

Page	Address	Data
4	17	D1
4	16	61

20) Perform "Record System Check" successively.

2. Record System Check

Note: Perform "Record System Check" successively (with BIST check tape in playback status)

1) Enter the following data.
Note: Press the PAUSE button each time the data is set.

Page	Address	Data
4	41	01
4	0F	02
4	0E	01
4	40	01
4	0F	0A
4	40	00
4	40	01
4	0F	0E
4	40	00
4	40	01
4	0F	8E
4	40	00

2) With the HOLD switch on adjusting remote commander turned ON, eject the BIST check tape, and insert a record tape instead.
3) Set the REC mode.

IC401 (U1) Record System Check

4) Select page: 4, address: 11, set data: 08, and press the PAUSE button.
5) Select page: 4, address: 42, set data: 01, and press the PAUSE button.
6) Select page: 4, address: 13, set data: 07, and press the PAUSE button.
(Data automatically returns to "00".)
7) Select page: 4, address: 42, set data: 00, and press the PAUSE button.
8) Select page: 4, address: 11, set data: 00, and press the PAUSE button.
9) If IC401 (U1) → IC411 (D1) record system is normal, the following data are displayed on page: 4, addresses: 16, 17.

Page	Address	Data
4	17	05
4	16	80

IC411 (D1) Record System Check

10) Select page: 3, address: 01, set data: 0D, and press the PAUSE button.
11) Select page: 4, address: 1C, set data: FF, and press the PAUSE button.
12) Select page: 4, address: 11, set data: 04, , and press the PAUSE button.
13) Select page: 4, address: 11, set data: 00, and press the PAUSE button.
14) Select page: 4, address: 13, set data: 03, and press the PAUSE button.
(Data automatically returns to "00")
15) If IC401 (U1) → IC411 (D1) record system is normal, the following data are displayed on page: 4, addresses: 14, 15.

Page	Address	Data
4	15	05
4	14	80

16) If IC411 (D1) → IC701 (IND1) record system is normal, the following data are displayed on page: 4, addresses: 16, 17.

Page	Address	Data
4	17	E6
4	16	BC

17) If IC805 (A1) → IC411 (D1) record system is normal, the following data are displayed on page: 4, addresses: 18, 19.

Page	Address	Data
4	19	76
4	18	B9

18) If IC411 (D1) → IC774 (DX) record system is normal, the following data are displayed on page: 4, addresses: 1A, 1B.

Page	Address	Data
4	1B	4E
4	1A	11

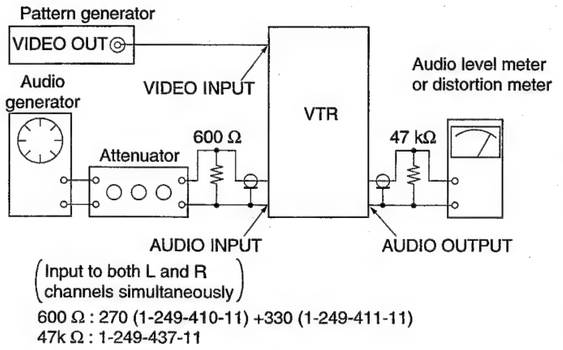
3-6. AUDIO SYSTEM ADJUSTMENTS

Unless spesified otherwise, set the switches as follows.

AUDIO NODE (Menu display) Fs48k
INPUT SELECT ..... VIDEO
AUDIO MONITOR CH-1/2
REC LEVEL L, R ..... Center

Note 1: Set AUDIO MODE at the SET UP menu of the menu screen.

Connection of Equipment



600 Ω : 270 (1-249-410-11) +330 (1-249-411-11)
47k Ω : 1-249-437-11

Fig. 5-3-33.

1. Playback Level/Indicator Check

Mode	Playback
Signal	Audio check reference tape
Measurement point	Audio output terminal (Left and Right)
Measuring Instrument	Audio level meter and frequency counter
Specified Value	32 kHz mode: 1 kHz signal should be output 48 kHz mode: 1 kHz signal level should be +6 ± 2 dBv (+8.2 ± 2 dBs) 44.1 kHz mode EMP ON: 7.35 kHz signal level is –6 ± 1 dB for 1 kHz signal level in 48 kHz mode 44.1 kHz mode EMP ON: 7.35 kHz signal level is 0 ± 1 dB for 1 kHz signal level in 48 kHz mode NS AUDIO lamp should be lit

Note: 0 dBv = 1 Vrms
0 dBs = 0.775 Vrms

Checking method:

1) Check that the playback signal level satisfies the specified value.

2. E-E Level Check

Mode	E-E (LINE 1 input)
Signal	Audio: 1 kHz –6 dBv (–3.8 dBs) Signal Audio input terminal (Left and Right)
	Video: Color bar signal Video input terminal
Measurement point	Audio output terminal (Left and Right)
Measuring Instrument	Audio level meter
Specified Value	–6 ± 3 dBv (–3.8 ± 3 dBs)

Checking method:

1) Check that the 1 kHz signal level satisfies the specified value.
2) Check that the number in the segment of the level meter (fluorescent display tube) that is lit is between 8 and 12 for both the L and R channels.

3. Recording/Playback Check (Audio Lock Mode)

Mode	Recording/Playback (LINE input)
Signal	Audio: no signal
	Video: Color bar Video input terminal
Measurement point	Display data of page: 5, address: 00 of the adjusting remote commander
Measuring Instrument	
Specified Value	① After playback pause, the changes in the data after 5 frames have been sent continuously must be in the following order. "D4"→"D6"→"D6"→"D6"→"D6"→"D4" (NTSC) "D8"→"D8"→"D8"→"D8"→"D8"→"D8" (PAL) ② NS AUDIO lamp should be lit.

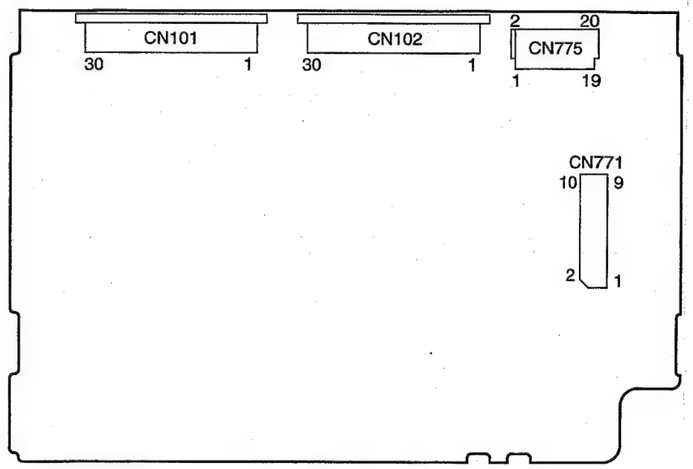
Note 1: Check that the AUDIO MODE (menu screen) is Fs48k.
Note 2: Send the frames using front panel button.

Checking method:

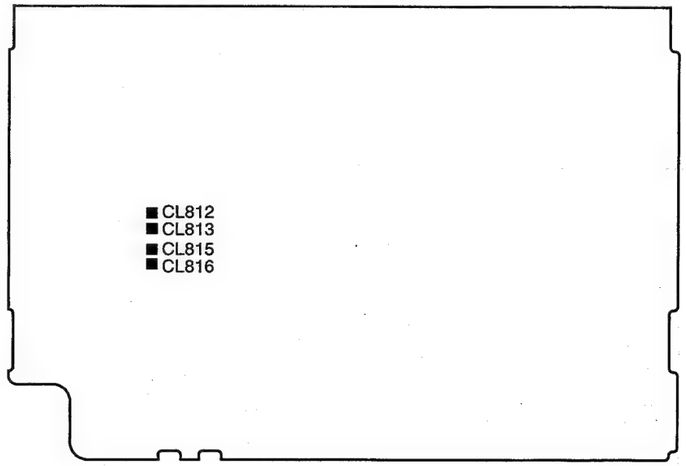
1) With no audio signal being input, record the color bar signal for about 1 minute.
2) Playback the recorded part, and set the playback pause mode.
3) Select page: 5, address: 00 using the adjusting remote commander.
4) Send the frames, so that the display data for page: 5, address: 00 is D4. (NTSC)
5) Send 5 frames continuously, and check that the display data of page: 5, address: 00 changes in the order specified.
6) Exit the playback pause mode, playback the recorded part, and check that the NS AUDIO lamp (front panel) is off.

3-7. ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

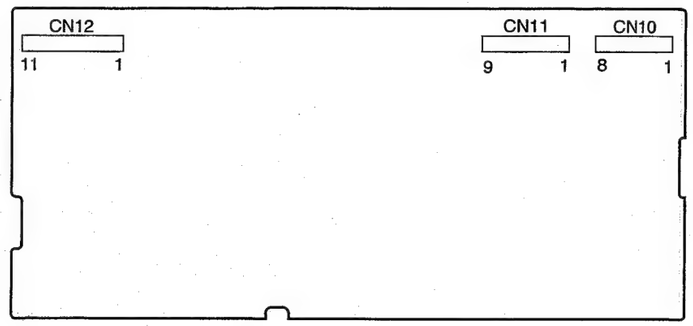
RP-228 BOARD (SIDE A)



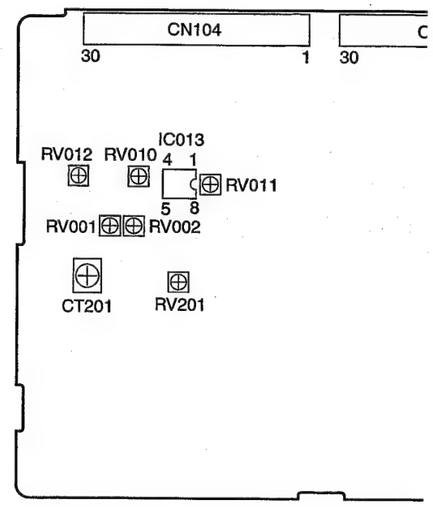
RP-228 BOARD (SIDE B)



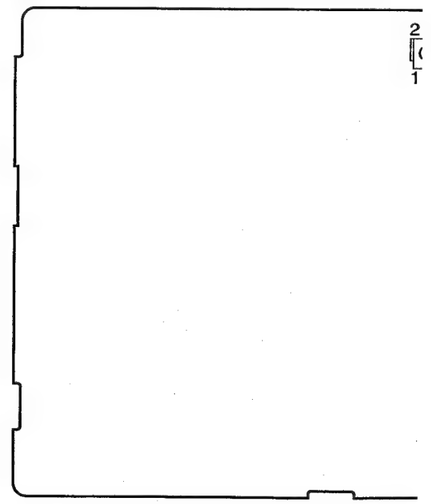
POWER BLOCK (U-2)



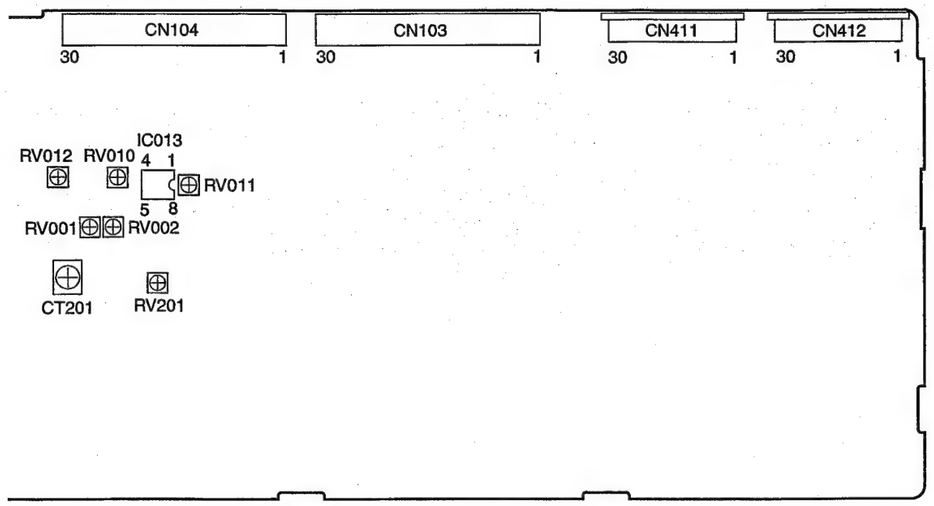
JC-19 BOARD (SIDE A)



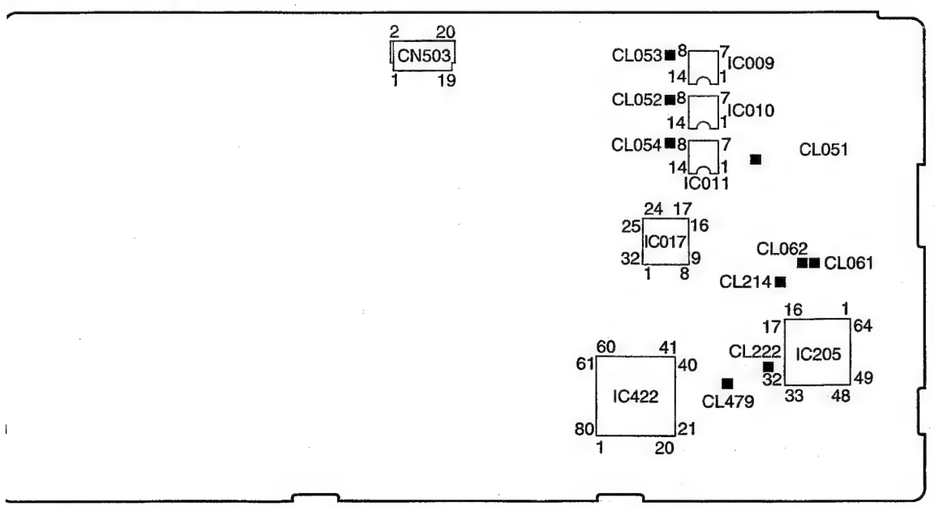
JC-19 BOARD (SIDE B)



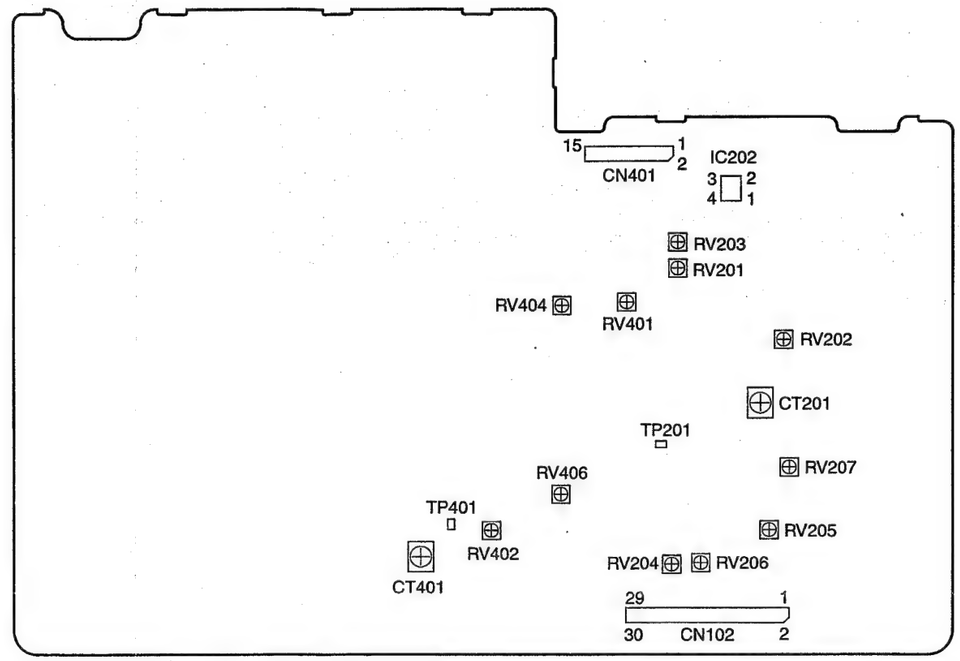
C-19 BOARD (SIDE A)



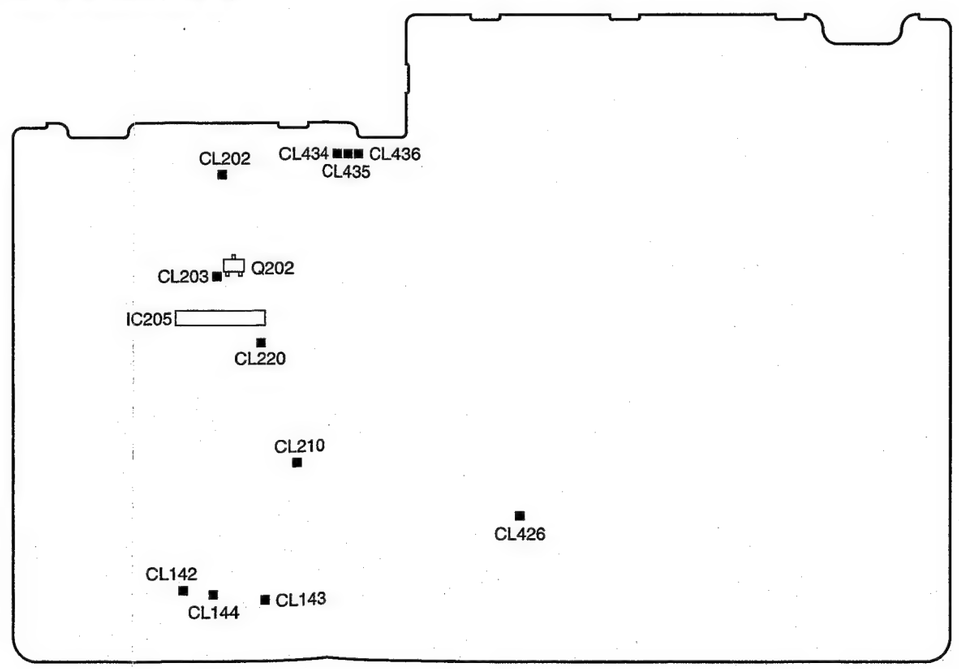
C-19 BOARD (SIDE B)



VA-102 BOARD (SIDE A)



VA-102 BOARD (SIDE B)



SECTION 6
REPAIR PARTS LIST

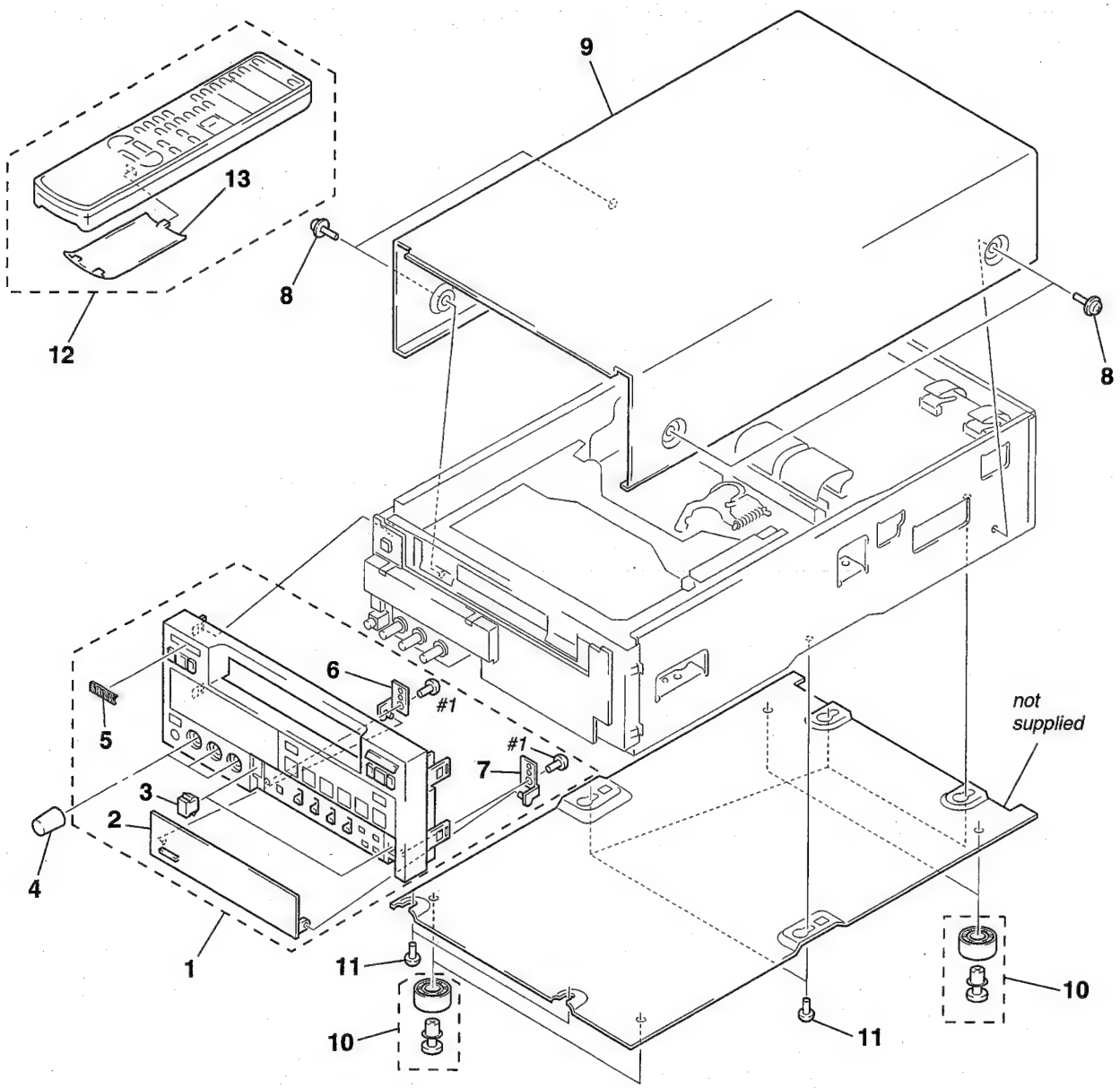
6-1. EXPLODED VIEWS

NOTE:
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories are given in the last of the electrical parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

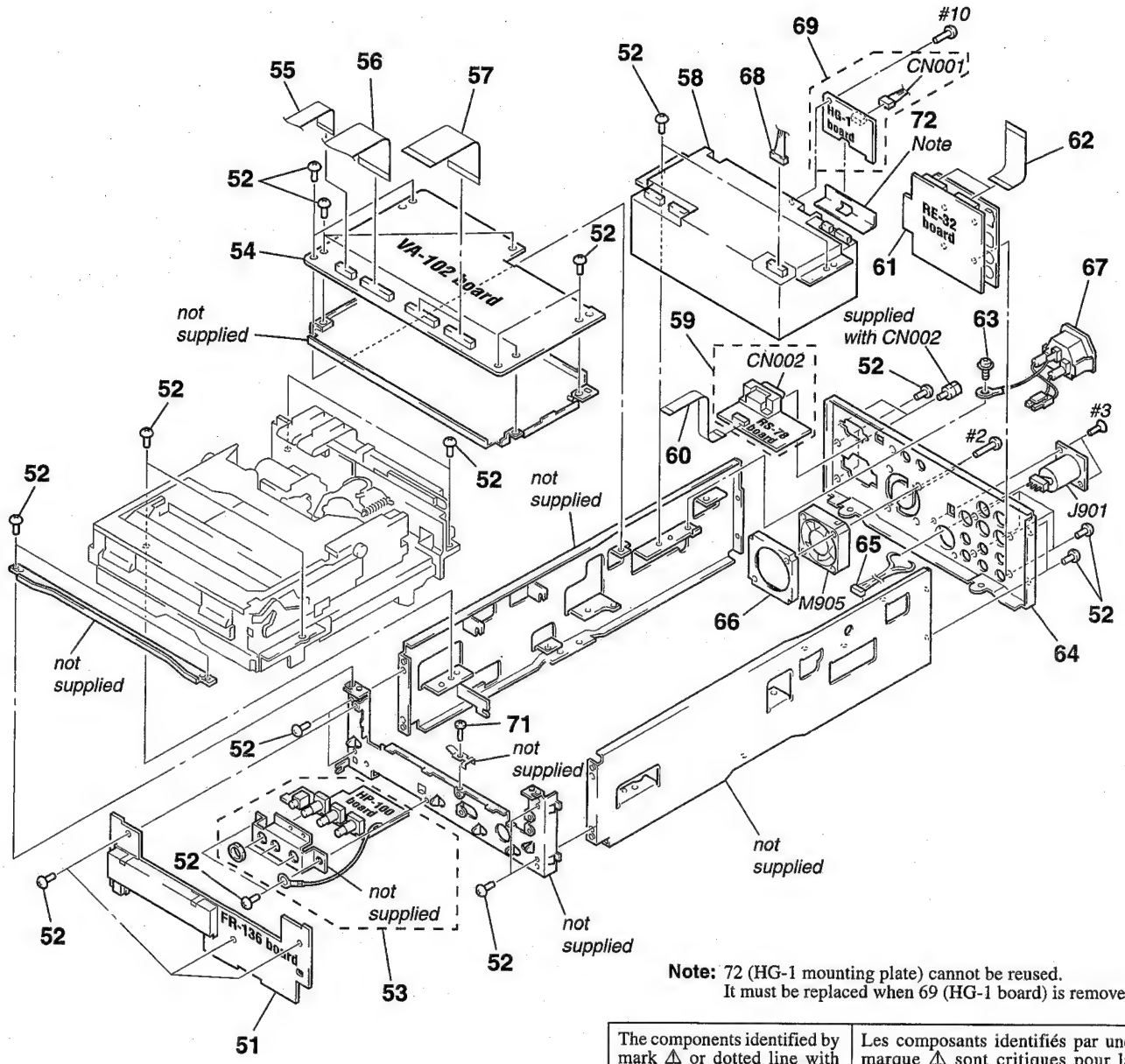
Les composants identifiés par une marque ⚠ sont critiquens pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

6-1-1. OVERALL ASSEMBLY



Ref. No.	Part No.	Description	Remark
1	X-3950-023-1	PANEL ASSY, FRONT (DSR-20MD)	
1	X-3950-022-1	PANEL ASSY (P), FRONT (DSR-20MDP)	
2	X-3950-025-1	DOOR ASSY (DSR-20MD)	
2	X-3950-024-1	DOOR ASSY (P) (DSR-20MDP)	
3	3-950-280-01	MAGNET	
4	3-956-976-11	KNOB, ROTARY	
5	4-942-567-01	EMBLEM (NO.4), SONY	
* 6	X-3948-057-1	HINGE (L) ASSY, DOOR	
* 7	X-3948-056-1	HINGE (R) ASSY, DOOR	
8	4-886-821-01	SCREW, M3 CASE	
* 9	3-987-158-01	CASE, UPPER	
10	3-987-171-01	FOOT (FF-004)	
11	3-970-608-41	SUMITITE (B3), +BV	
12	1-475-693-11	REMOTE COMMANDER (RMT-DS20)	
13	3-708-923-01	LID, BATTERY CASE (for RMT-DSR20)	

6-1-2. CHASSIS ASSEMBLY



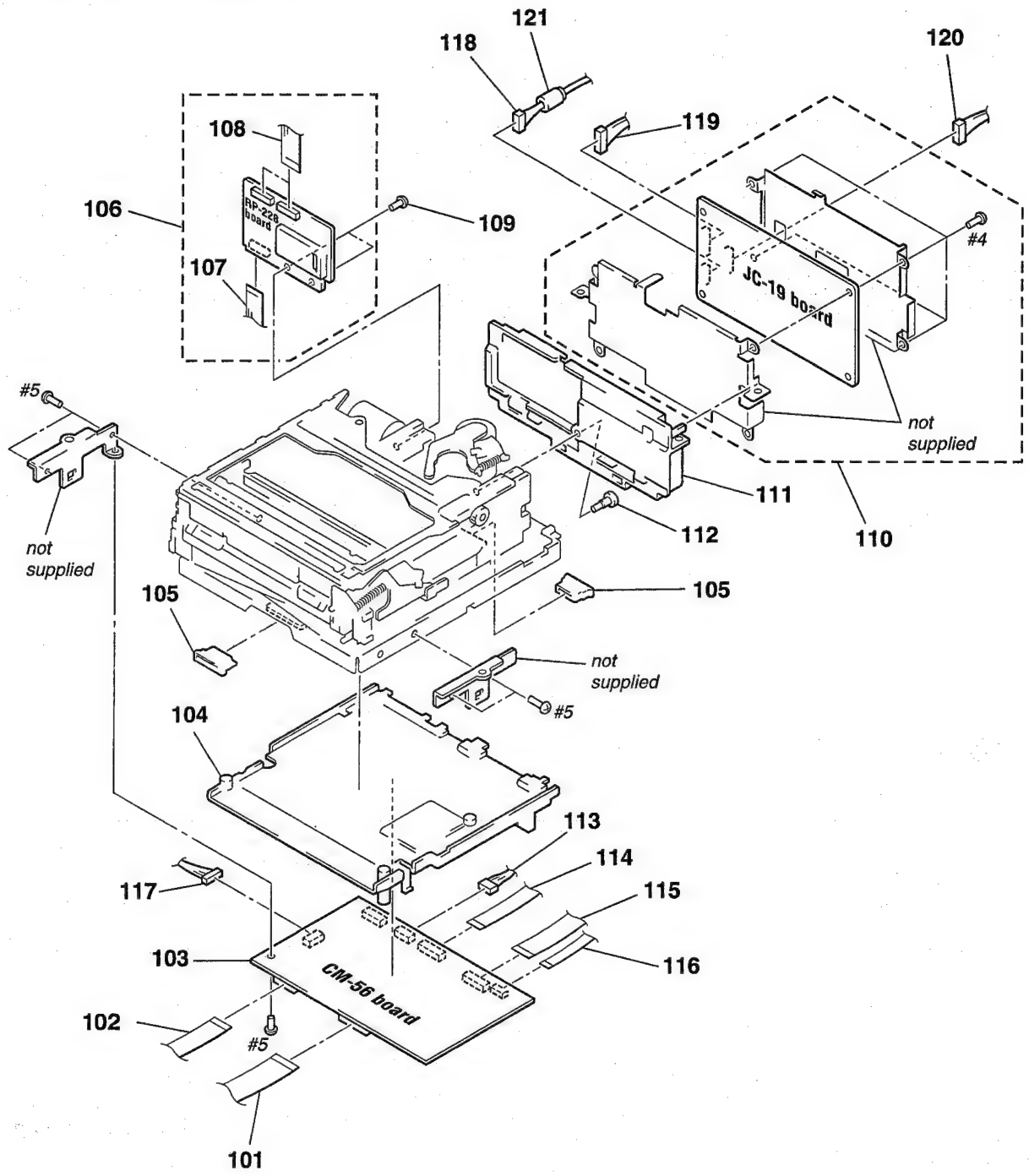
Note: 72 (HG-1 mounting plate) cannot be reused.
It must be replaced when 69 (HG-1 board) is removed.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
* 51	A-7074-111-A	FR-136 BOARD, COMPLETE	
52	3-970-608-41	SUMITITE (B3), +BV	
* 53	A-7073-471-A	HP-100 BOARD, COMPLETE	
* 54	A-7067-251-A	VA-102 BOARD, COMPLETE (DSR-20MDP)	
* 54	A-7067-250-A	VA-102 BOARD, COMPLETE (DSR-20MD)	
55	1-782-823-11	CABLE, FLAT (FVH-4)	
56	1-782-825-11	CABLE, FLAT (FVF-8)	
57	1-782-824-11	CABLE, FLAT (FVJ-7)	
⚠58	1-468-441-11	POWER BLOCK (U-1/U-2) (DSR-20MD)	
⚠58	1-468-442-11	POWER BLOCK (U-1/U-2) (DSR-20MDP)	
* 59	A-7073-472-A	RS-78 BOARD, COMPLETE	
60	1-782-822-11	CABLE, FLAT (FVR-9)	
* 61	A-7073-470-A	RE-32 BOARD, COMPLETE	
62	1-782-826-11	CABLE, FLAT (FVR-10)	

Ref. No.	Part No.	Description	Remark
63	3-975-291-01	SCREW (4X6)	
* 64	3-987-157-31	PANEL, REAR	
65	1-958-841-11	HARNESS (DP-73)	
66	3-945-562-01	BRACKET, FAN	
⚠67	1-958-585-11	HARNESS (AC-227)	
68	1-958-059-11	HARNESS (VP-72)	
* 69	A-7073-576-A	HG-1 BOARD, COMPLETE	
71	3-964-010-01	SCREW M2	
* 72	3-050-330-01	BRACKET, HG-1	
CN001	1-958-813-11	HARNESS (DH-50)	
CN002	1-565-388-21	CONNECTOR, D-SUB 9P (REMOTE RS-232C)	
J901	1-564-603-11	CONNECTOR (WITH DC SW) 4P	
M905	1-698-534-31	FAN, DC	

6-1-3. MD BLOCK ASSEMBLY

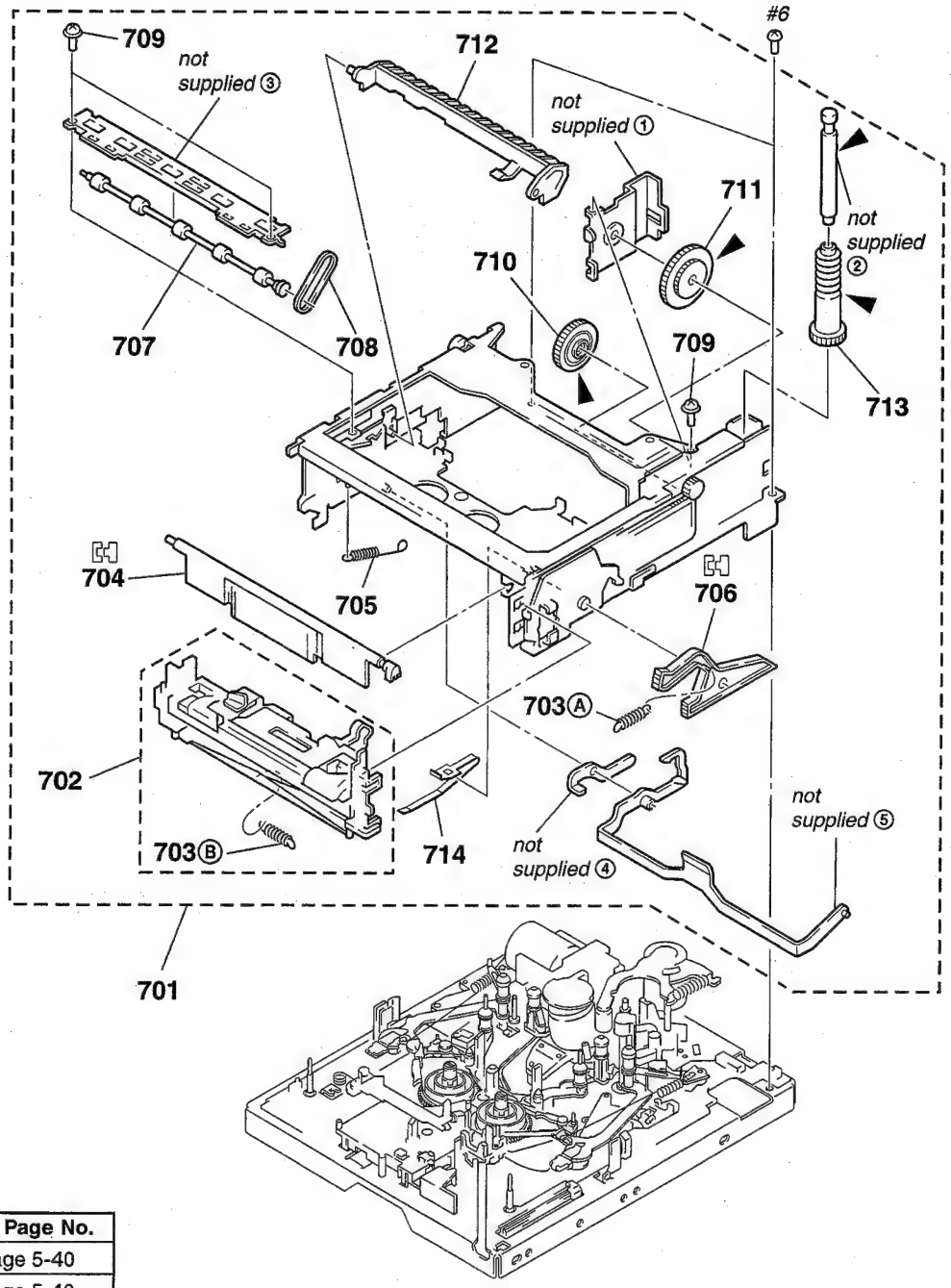


Ref. No.	Part No.	Description	Remark
101	1-776-148-11	CABLE, FLAT (FCM-11) 15P	
102	1-776-145-11	CABLE, FLAT (FCM-8) 16P	
* 103	A-7067-127-A	CM-56 BOARD, COMPLETE (DSR-20MDP)	
* 103	A-7067-131-A	CM-56 BOARD, COMPLETE (DSR-20MD)	
* 104	3-987-138-01	FRAME, MD	
105	1-764-137-11	CONNECTOR, TRANSLATION 15P	
* 106	A-7067-128-A	RP-228 BOARD, COMPLETE (DSR-20MDP)	
* 106	A-7067-132-A	RP-228 BOARD, COMPLETE (DSR-20MD)	
107	1-776-149-11	CABLE, FLEXIBLE FLAT 30P	
108	1-783-376-11	CABLE, FLEXIBLE FLAT (FFC-245)	
109	3-732-817-01	SCREW (2X4.5), TAPPING	
* 110	A-7067-126-A	JC-19 BOARD, COMPLETE (DSR-20MDP)	

Ref. No.	Part No.	Description	Remark
* 110	A-7067-130-A	JC-19 BOARD, COMPLETE (DSR-20MD)	
* 111	3-987-133-01	SUPPORT, JC	
112	3-056-130-01	SCREW (M3), STEP	
113	1-958-288-11	HARNESS (CM-130)	
114	1-776-151-11	CABLE, FLAT (FCM-12) 14P	
115	1-776-147-11	CABLE, FLAT (FCM-10) 15P	
116	1-776-146-11	CABLE, FLAT (FCM-9) 9P	
117	1-958-057-11	HARNESS (CP-79)	
118	1-958-061-11	HARNESS (VJ-103)	
119	1-958-058-11	HARNESS (JP-55)	
120	1-958-060-11	HARNESS (VJ-102)	
121	1-543-793-11	FILTER, CLAMP (FERRITE CORE)	

6-1-4. FL CASETTE COMPARTMENT ASSEMBLY

NOTE FOR INSTALLATION
►: Place for grease (SG-055G: 7-651-000-09)
[E-1] : Take note of the position and specified direction.

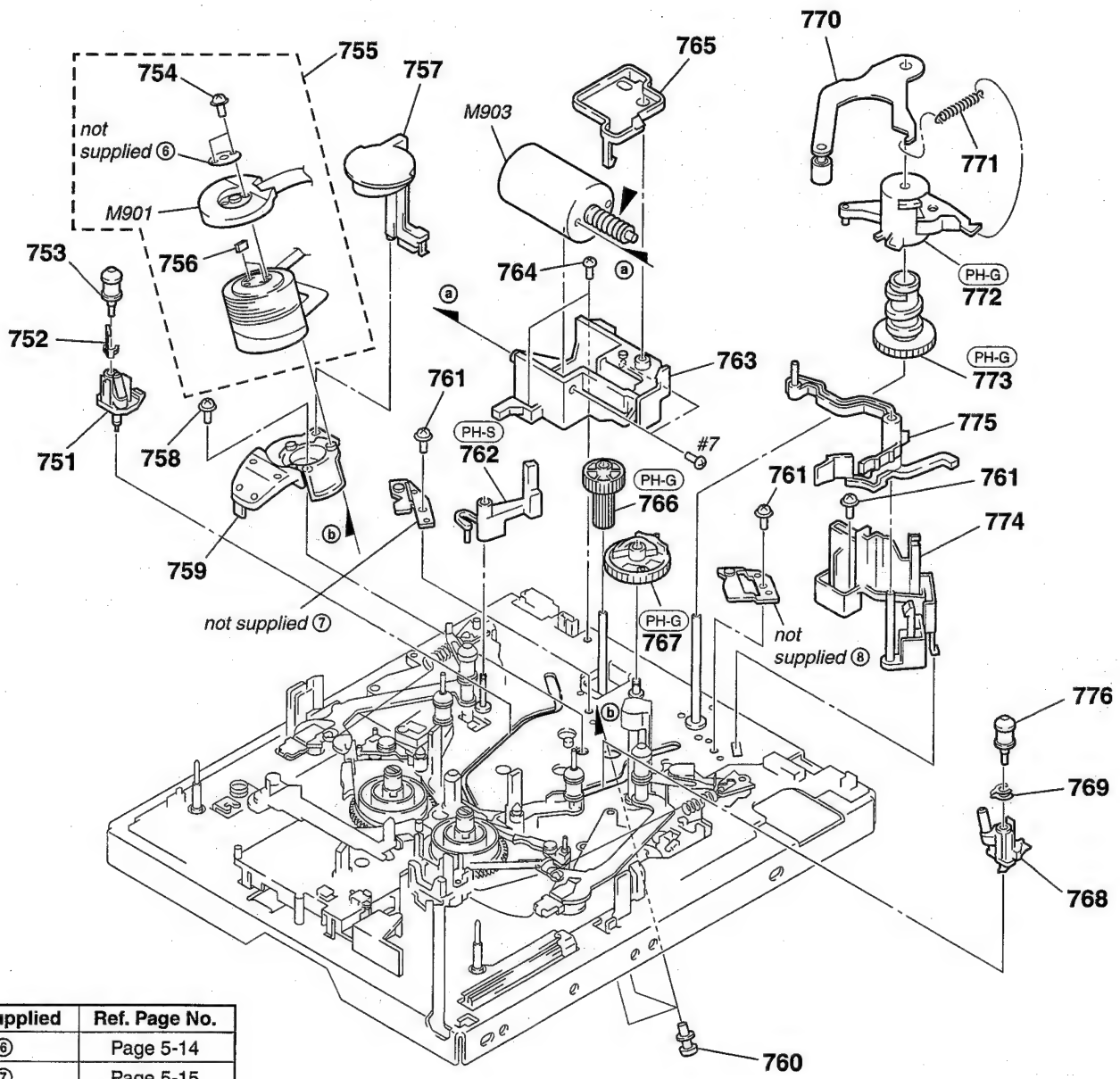


not supplied	Ref. Page No.
①	Page 5-40
②	Page 5-40
③	Page 5-38
④	Page 5-41
⑤	Page 5-41

Ref. No.	Part No.	Description	Remark
701	A-7092-644-A	FL BLOCK ASSY	(5-2)
702	A-7092-647-A	SLOAT BLOCK ASSY, C	(5-41)
703	3-967-604-01	SPRING (DB), TENSION	(Ⓐ: 5-40/Ⓑ: 5-41)
704	3-967-655-01	DOOR, C	(5-40)
705	3-967-613-01	SPRING (HS), TENSION COIL	(5-41)
706	3-967-777-01	ARM, DAMPER	(5-40)
707	X-3945-780-1	SHAFT ASSY, ROLLER	(5-38)
708	3-967-816-01	BELT, ROLLER	(5-38)
709	3-947-503-01	SCREW (M1.4X2.5)	
710	3-967-591-01	GEAR (B)	(5-40)
711	3-967-590-01	GEAR (A)	(5-40)
712	3-967-653-01	OPENER, LID	(5-39)
713	3-967-592-01	WORM, C	(5-40)
714	3-967-636-01	SPRING, SHIFT PLATE	(5-41)

6-1-5. MECHANISM CHASSIS ASSEMBLY (1) (TOP SIDE VIEW (1))

NOTE FOR INSTALLATION
(PH-): Phase adjustment
►: Place for grease (SG-055G: 7-651-000-09)



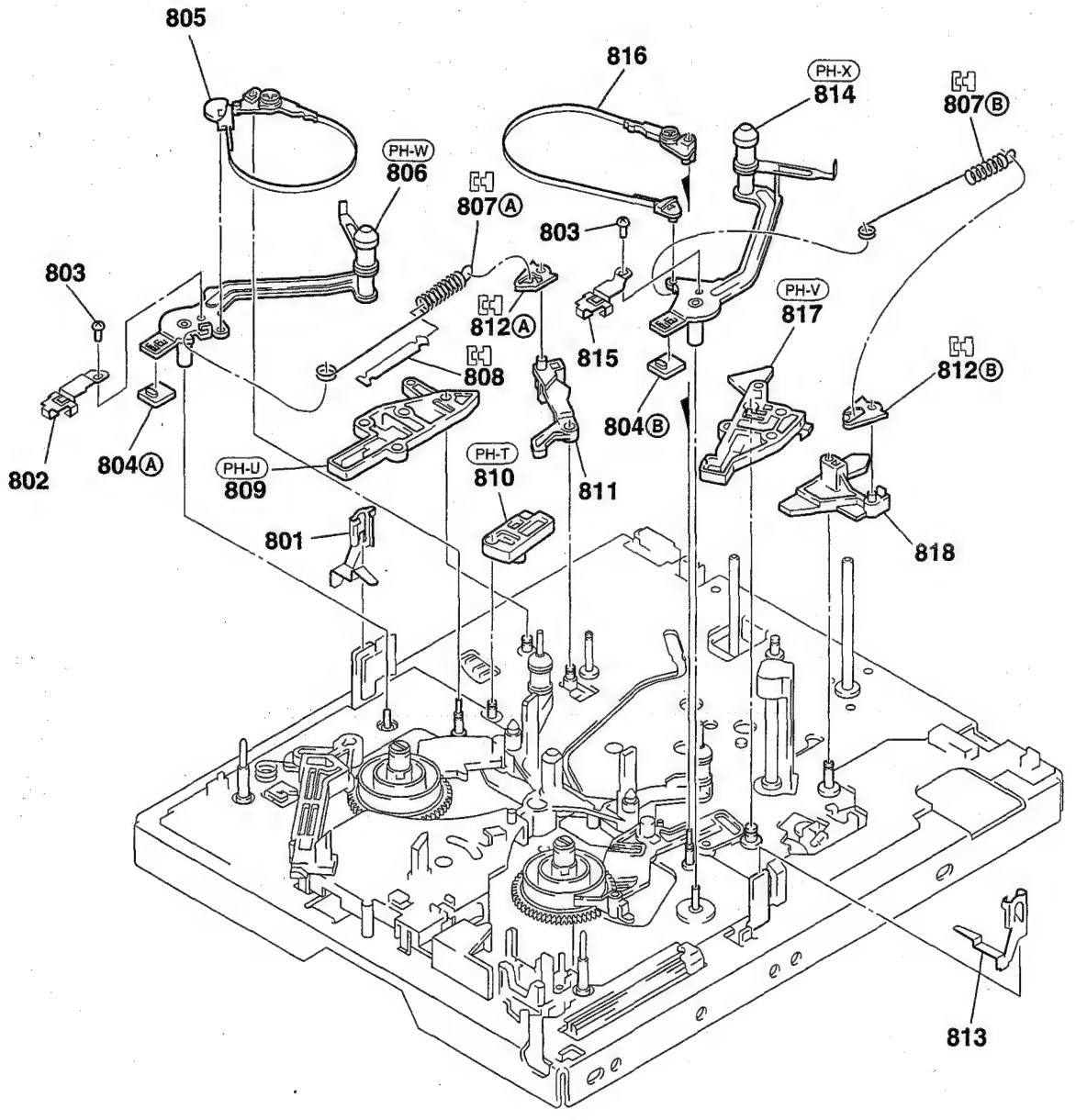
not supplied	Ref. Page No.
⑥	Page 5-14
⑦	Page 5-15
⑧	Page 5-16

Ref. No.	Part No.	Description	Ref. page No.
751	X-3945-801-1	BASE ASSY, TG3/4	(5-31)
752	3-967-740-01	SPRING, TG3 LOCK	(5-26, 5-33)
753	X-3947-441-1	ROLLER ASSY, TG3	(5-26)
754	3-703-816-74	SCRWE (M1.4X4.5), SPECIAL HEAD	
755	A-7044-015-A	DRUM ASSY (DEH-08B-R)	(5-14)
756	1-770-363-11	ELASTIC CONNECTOR	(5-14)
757	3-967-785-01	STOPPER, TAPE	(5-14)
758	3-967-728-01	SCREW (M2 X 5)	
759	3-967-817-01	BASE, DRUM	(5-14)
760	A-7040-449-A	SCREW ASSY	(5-14)
761	3-954-285-01	SCREW (M1.4X0.2)	
762	X-3945-798-1	ARM ASSY, TC	(5-15)
763	3-967-675-01	HOLDER, LM	(5-15)
764	3-732-817-01	SCREW (2X4.5), TAPPING	

Ref. No.	Part No.	Description	Ref. page No.
765	3-967-751-01	COVER, LM	(5-15)
766	3-967-767-01	WHEEL, LM WORM	(5-15)
767	3-967-768-01	GEAR, PINCH DRIVING	(5-15)
768	X-3945-803-1	BASE ASSY, TG5/6	(5-33)
769	3-967-741-01	SPRING, TG6 LOCK	(5-26, 5-33)
770	X-3945-810-1	ARM ASSY, PINCH	(5-16)
771	3-967-645-01	SPRING (PINCH), TENSION COIL	(5-16)
772	3-967-676-01	LIMITER, PINCH	(5-16)
773	3-967-769-01	GEAR, PINCH CAM	(5-16)
774	3-967-679-01	RETAINER, PINCH	(5-16)
775	3-967-795-03	ARM, HC	(5-16)
776	X-3945-802-1	ROLLER ASSY, TG6	(5-26)
M901	X-3944-897-2	FPC ASSY, MOTOR	(5-14)
M903	X-3945-784-1	MOTOR ASSY, LM (LOADING)	(5-15)

6-1-6. MECHANISM CHASSIS ASSEMBLY (2) (TOP SIDE VIEW (2))

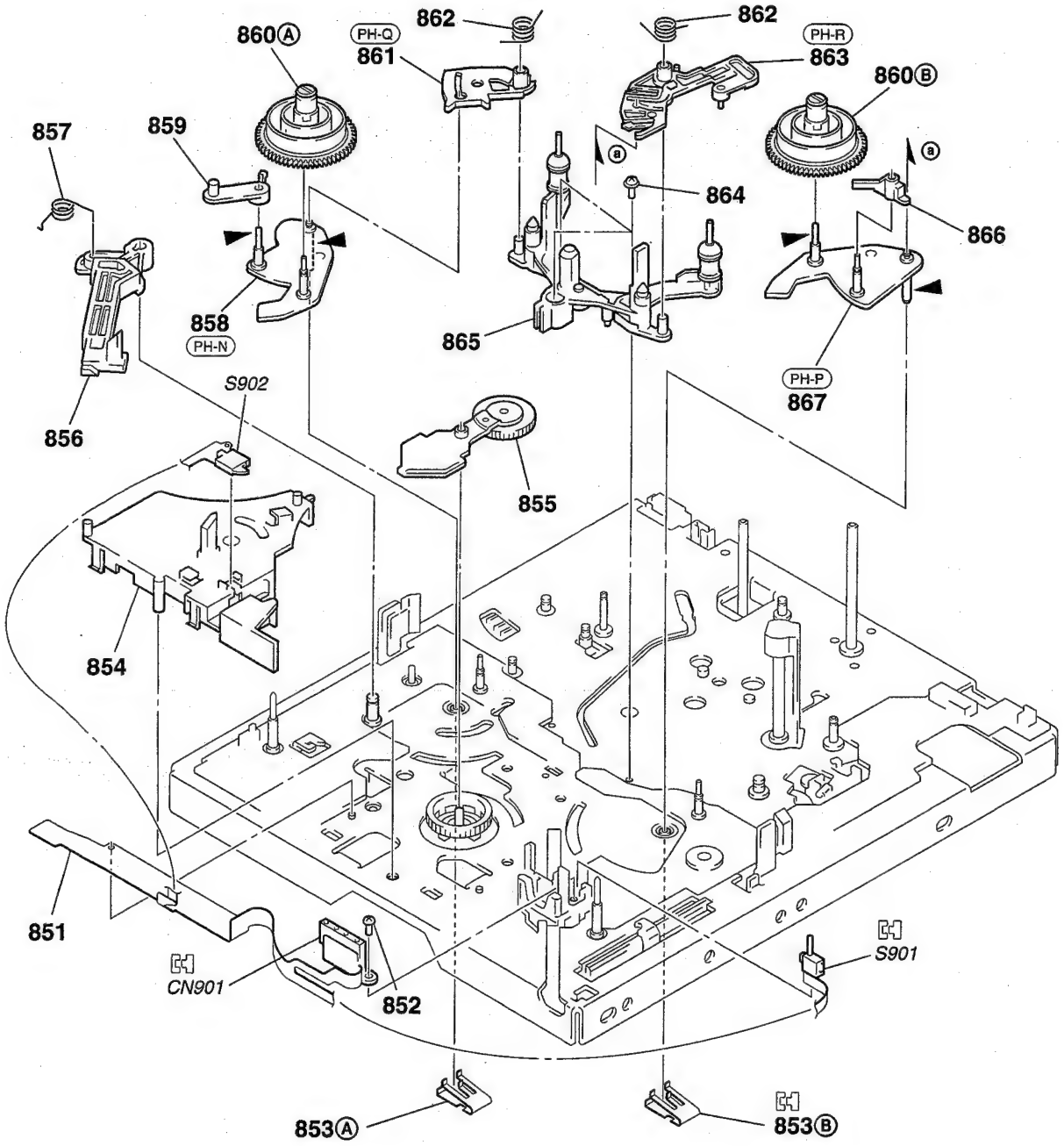
NOTE FOR INSTALLATION
(PH-): Phase adjustment
: Take note of the position and specified direction.



Ref. No.	Part No.	Description	Ref. page No.
801	3-967-809-01	RETAINER, TG2	(5-19)
802	3-967-715-01	SPRING, TG2 PLATE	(5-19)
803	3-728-148-11	SCREW (M1.4X2.5), SPECIAL HEAD	
804	3-967-714-01	MAGNET, ET	(Ⓐ: 5-19/Ⓑ: 5-520)
805	X-3945-792-1	BAND ASSY, S TENSION REGULATOR	(5-19)
806	X-3945-805-1	ARM ASSY, TG2	(5-19)
807	3-967-726-01	SPRING (TG2), TENSION COIL	(5-18, Ⓐ: 5-9/Ⓑ:5-10)
808	3-967-685-01	SHEET, DAMPER	(5-18)
809	X-3945-782-1	ARM ASSY, TG2 LOAD	(5-19)
810	3-967-764-01	ARM, TG2 SELECTION	(5-18)
811	3-967-807-01	HOOK, TG2 SPRING	(5-18)
812	3-967-724-01	ADJUSTOR, SPRING	(5-18, Ⓐ: 5-9/Ⓑ: 5-10)
813	3-967-810-01	RETAINER, TG7	(5-20)
814	X-3945-806-1	ARM ASSY, TG7	(5-20)
815	3-967-694-01	SPRING, TG7 PLATE	(5-20)
816	X-3945-793-1	BAND ASSY, T TENSION REGULATOR	(5-20)
817	X-3945-783-1	ARM ASSY, TG7 LOAD	(5-20)
818	3-967-808-01	HOOK, TG7 SPRING	(5-18)

6-1-7. MECHANISM CHASSIS ASSEMBLY (3) (TOP SIDE VIEW (3))

NOTE FOR INSTALLATION
(PH-): Phase adjustment
►: Place for grease (SG-055G: 7-651-000-09)
[+]: Take note of the position and specified direction.

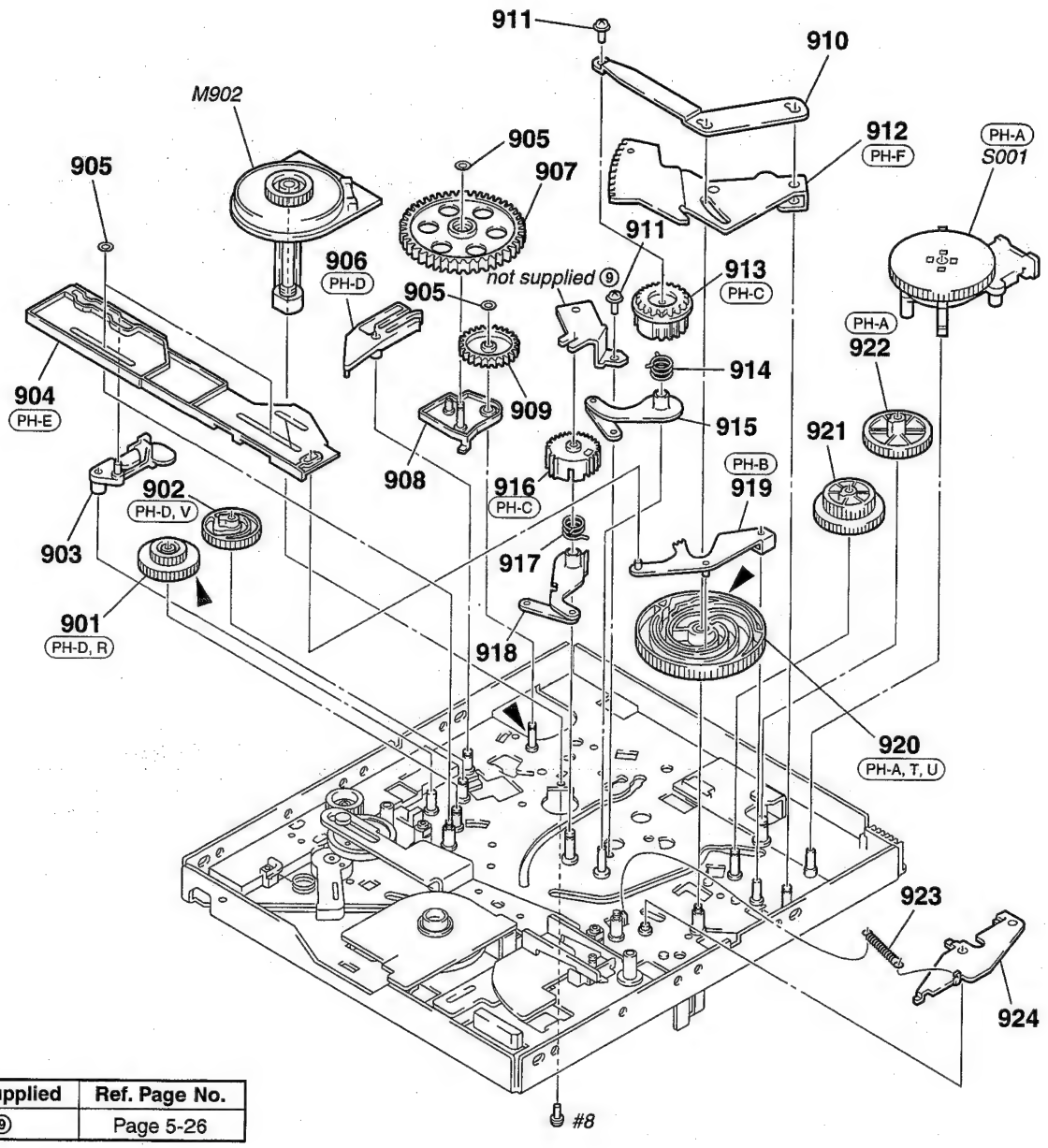


Ref. No.	Part No.	Description	Ref. page No.
851	1-658-990-11	FP-406 FLEXIBLE BOARD	
852	3-318-201-11	SCREW (B) (1.4X3), TAPPING	
853	3-967-684-01	SPRING, PLATE	(Ⓐ: 5-23/Ⓑ: 5-24)
854	3-967-692-01	GUARD, GOOSENECK	(5-17)
855	X-3945-807-1	ARM ASSY, GOOSENECK	(5-17)
856	3-967-784-01	ARM, RL	(5-17)
857	3-967-683-01	SPRING, RL PRESS	(5-17)
858	X-3945-814-1	PLATE ASSY, S REEL	(5-23)
859	3-967-680-01	LINK, RL	(5-17)
860	A-7040-441-A	TABLE BLOCK ASSY, REEL	(Ⓐ: 5-21/Ⓑ: 5-22)

Ref. No.	Part No.	Description	Ref. page No.
861	3-967-776-01	BRAKE, S	(5-25)
862	3-967-673-01	SPRING, S BRAKE	(5-25)
863	3-967-775-01	RATCHET, T	(5-25)
864	3-947-503-01	SCREW (M1.4X2.5)	
865	X-3945-804-1	BASE ASSY, TG18	(5-25)
866	3-967-725-01	HOLDER, T REEL	(5-22)
867	X-3945-815-1	PLATE ASSY, T REEL	(5-24)
CN901	1-770-312-21	CONNECTOR 4P	(5-35)
S901	1-762-551-11	SWITCH, PUSH (REC PROOF)	(5-35)
S902	1-572-288-11	SWITCH, PUSH (C IN SW)	(5-17)

6-1-8. MECHANISM CHASSIS ASSEMBLY (4) (BOTTOM SIDE VIEW (1))

NOTE FOR INSTALLATION
(PH-): Phase adjustment
►: Place for grease (SG-055G: 7-651-000-09)

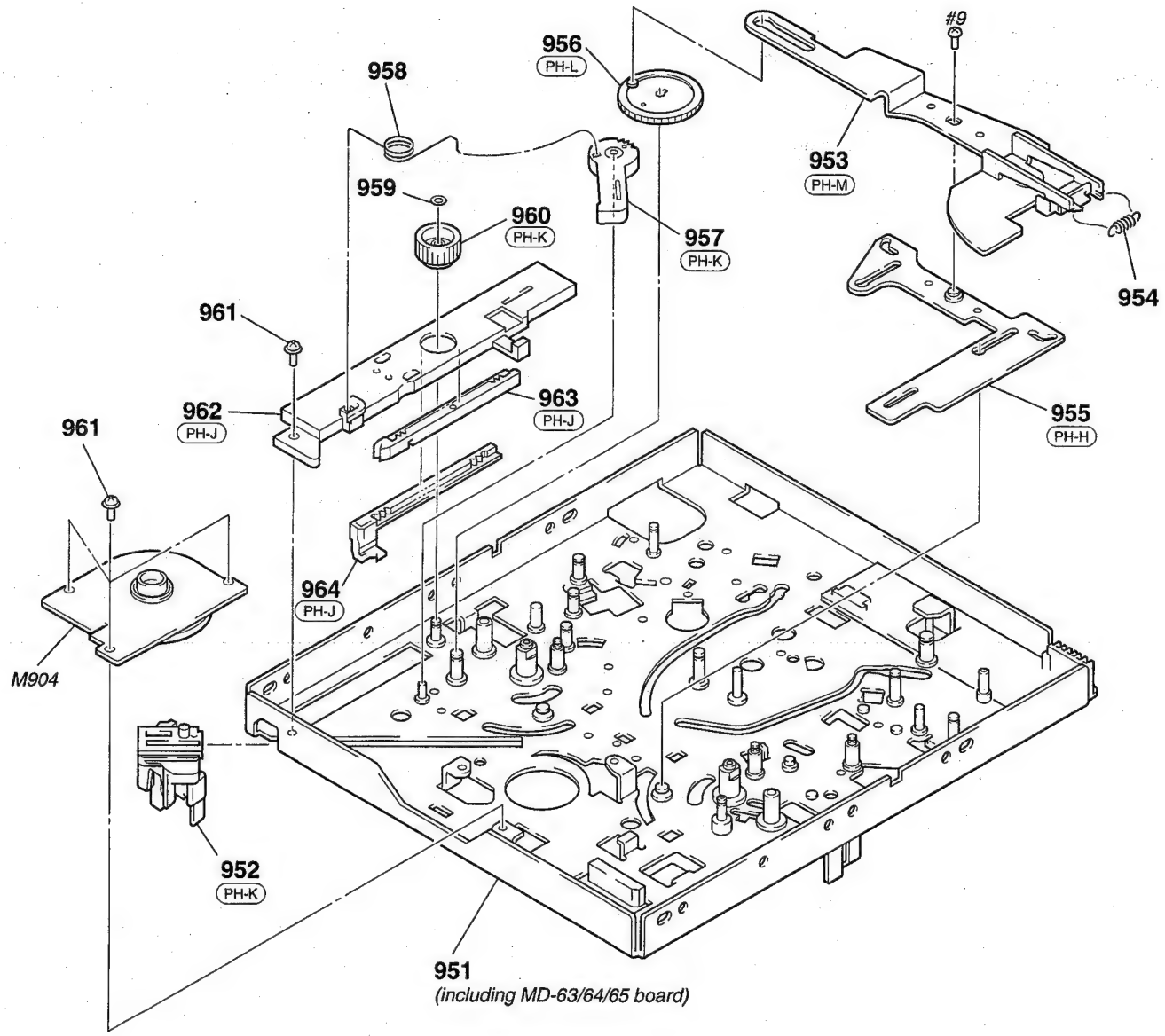


not supplied	Ref. Page No.
⑨	Page 5-26

Ref. No.	Part No.	Description	Ref. page No.
901	3-967-678-01	GEAR, T CAM	(5-28)
902	3-967-756-01	GEAR, TG7 CAM	(5-28)
903	3-967-763-01	ARM, TG7 SELECTION	(5-28)
904	3-967-677-01	SLIDER, M	(5-28)
905	3-669-465-01	WASHER (1.5), STOPPER	
906	3-967-829-01	ARM, FL SELECTION	(5-28)
907	3-967-828-01	GEAR, FL JOINT	(5-26)
908	X-3945-813-1	ARM ASSY, FL JOINT	(5-27)
909	3-967-830-01	GEAR, FL RELAY	(5-27)
910	3-967-755-01	RETAINER, GL ARM	(5-28)
911	3-947-503-01	SCREW (M1.4X2.5)	
912	3-967-754-01	ARM, GL	(5-28)
913	3-967-790-01	GEAR, TG3/4	(5-31)
914	3-967-746-01	SPRING, TG3/4 LIMITER	(5-31)
915	X-3945-794-1	ARM ASSY, TG3/4	(5-31)
916	3-967-792-01	GEAR, TG5/6	(5-33)
917	3-967-748-01	SPRING, TG5/6 LIMITER	(5-33)
918	X-3945-795-1	ARM ASSY, TG5/6	(5-33)
919	3-967-753-01	ARM, M SLIDER	(5-28)
920	3-967-819-01	CAM, MAIN	(5-29)
921	3-967-765-01	GEAR, TC	(5-27)
922	3-967-766-01	GEAR, RELAY	(5-27)
923	3-967-633-01	SPRING (TG2SL), TENSION COIL	(5-29)
924	X-3945-781-1	ARM ASSY, TG2 SL	(5-29)
M902	8-835-545-01	MOTOR, DC SCD11A/J-N (CAPSTAN)	(5-26)
S001	1-762-550-11	SWITCH, ROTARY (MODE)	(5-27)

6-1-9. MECHANISM CHASSIS ASSEMBLY (5) (BOTTOM SIDE VIEW (2))

NOTE FOR INSTALLATION
(PH-): Phase adjustment



Ref. No.	Part No.	Description	Ref. page No.
* 951	A-7040-431-A	CHASSIS BLOCK ASSY, MECHANICAL (including MD-63/64/65 board)	
952	3-967-690-01	HOLDER, MIC	(5-35)
953	X-3945-789-1	ARM ASSY, RS	(5-34)
954	3-967-667-01	TENSION COIL SPRING	(5-34)
955	X-3945-788-1	LINK ASSY, PLATE	(5-37)
956	X-3945-787-1	GEAR ASSY, RS	(5-34)
957	3-967-783-01	LEVER, MIC	(5-34)
958	3-967-682-01	SPRING, MIC PRESS	(5-34)
959	3-669-465-01	WASHER (1.5), STOPPER	
960	3-967-681-01	GEAR, RACK JOINT	(5-35)
961	3-947-503-01	SCREW (M1.4X2.5)	
962	3-967-689-01	HOLDER, RACK	(5-35)
963	3-967-771-01	RACK (SC)	(5-35)
964	3-967-770-01	RACK (LC)	(5-35)
M904	8-835-537-01	MOTOR, DC SRD11A/J-N (REEL)	(5-34)

6-2. ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- RESISTORS
  All resistors are in ohms.
  METAL: Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F: nonflammable
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA. . : μA. . uPA. . : μPA. .
  uPB. .: μPB. . uPC. . : μPC. .
  uPD. .: μPD. .
- CAPACITORS
  uF: μF
- COILS
  uH: μH

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiquens pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description			Remark
*	A-7067-131-A	CM-56 BOARD, COMPLETE (DSR-20MD)			
*	A-7067-127-A	CM-56 BOARD, COMPLETE (DSR-20MDP)			
		**********			
		(Ref.No. 4,000 Series)			
		< CAPACITOR >			
C001	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C004	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C005	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C006	1-124-779-00	ELECT CHIP	10uF	20%	16V
C007	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C009	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C011	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C017	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C018	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C019	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C020	1-124-779-00	ELECT CHIP	10uF	20%	16V
C021	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C022	1-124-779-00	ELECT CHIP	10uF	20%	16V
C024	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C025	1-124-779-00	ELECT CHIP	10uF	20%	16V
C026	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C027	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C028	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C029	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C030	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C031	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C032	1-126-193-11	ELECT	1uF	20%	50V
C034	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C035	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C036	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C038	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C039	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C040	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C041	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C042	1-163-257-11	CERAMIC CHIP	180PF	5%	50V
C046	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C047	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C048	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C049	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C051	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C052	1-126-193-11	ELECT	1uF	20%	50V
C053	1-126-397-11	ELECT	33uF	20%	25V
C054	1-127-530-11	ELECT	22uF	20%	20V
C055	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C056	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C058	1-127-530-11	ELECT	22uF	20%	20V
C063	1-164-336-11	CERAMIC CHIP	0.33uF		25V
C066	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C067	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C068	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C073	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C075	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C076	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C078	1-124-779-00	ELECT CHIP	10uF	20%	16V
C079	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C080	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C081	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C082	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C083	1-127-530-11	ELECT	22uF	20%	20V
C086	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C087	1-127-530-11	ELECT	22uF	20%	20V
C088	1-126-193-11	ELECT	1uF	20%	50V
C090	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C091	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C092	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C093	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C094	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C095	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C096	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C099	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C101	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C102	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C103	1-126-204-11	ELECT CHIP	47uF	20%	16V
C104	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C105	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C106	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C107	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C108	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C111	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C112	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C113	1-163-020-00	CERAMIC CHIP	0.0082uF	10%	50V
C115	1-163-020-00	CERAMIC CHIP	0.0082uF	10%	50V
C117	1-163-020-00	CERAMIC CHIP	0.0082uF	10%	50V
C118	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C119	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V

Ref. No.	Part No.	Description			Remark
C120	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C121	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C122	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C123	1-124-779-00	ELECT CHIP	10uF	20%	16V
C126	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C128	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C129	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C133	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C504	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C505	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C506	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C508	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C509	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C510	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C511	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C512	1-126-193-11	ELECT	1uF	20%	50V
C513	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C514	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C515	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
		< CONNECTOR >			
CN001	1-770-699-11	CONNECTOR, FFC/FPC 16P			
* CN002	1-691-551-11	PIN, CONNECTOR (SMD) 8P			
CN003	1-750-345-11	CONNECTOR, FFC/EPC (ZIF) 30P			
* CN004	1-564-033-11	PIN, CONNECTOR 8P			
CN005	1-770-692-11	CONNECTOR, FFC/FPC 9P			
* CN006	1-691-074-11	HOUSING, CONNECTOR 15P			
* CN007	1-691-074-11	HOUSING, CONNECTOR 15P			
CN008	1-770-697-11	CONNECTOR, FFC/FPC 14P			
		< DIODE >			
D001	8-719-026-23	DIODE MA786-TX			
D002	8-719-106-53	DIODE RD10M-T1B			
D004	8-719-938-78	DIODE SB10-05PCP-TD			
D011	8-719-026-23	DIODE MA786-TX			
D012	8-719-026-23	DIODE MA786-TX			
D501	8-719-938-78	DIODE SB10-05PCP-TD			
D502	8-719-108-24	DIODE MA151A-TX			
		< FUSE >			
⚠F001	1-532-777-21	FUSE, MICRO (SECONDARY) (1.25A) (DSR-20MD)			
		< FILTER >			
FL001	1-233-351-21	FILTER, BAND PASS			
FL002	1-233-350-21	FILTER, BAND PASS			
		< IC >			
IC001	8-759-062-66	IC TC7S66F (TE85R)			
IC002	8-759-235-19	IC TC74HC08AF (EL)			
IC003	8-752-888-43	IC CXP912032-073R-T6			
IC005	8-759-327-00	IC CXA8044Q-T4			
IC006	8-759-085-67	IC uPC339G2-E2			
IC008	8-759-186-44	IC TC74VHC125F (EL)			
IC009	8-759-182-89	IC BA6219BFP-Y-E2			
IC011	8-759-148-05	IC CXA8010M-E1			
IC012	8-759-945-17	IC MB3775PF-G-BND-ER			

Ref. No.	Part No.	Description			Remark
IC014	8-759-510-73	IC BA10393F-E2			
IC016	8-759-510-71	IC BA10358F-E2			
IC017	8-759-011-65	IC TC74HC4053AF (EL)			
IC018	8-759-085-67	IC uPC339G2-E2			
IC019	8-759-510-71	IC BA10358F-E2			
IC021	8-759-335-42	IC CXA1793N-E2			
IC022	8-759-339-61	IC LB1897D			
IC501	8-759-098-24	IC PQ30RV11			
IC503	8-759-339-61	IC LB1897D			
		< COIL >			
L003	1-412-282-41	INDUCTOR	470uH		
L004	1-414-398-11	INDUCTOR	10uH		
L005	1-414-398-11	INDUCTOR	10uH		
L006	1-414-398-11	INDUCTOR	10uH		
L007	1-414-402-11	INDUCTOR	47uH		
L008	1-424-522-21	INDUCTOR	10uH		
L010	1-424-522-21	INDUCTOR	10uH		
L011	1-409-535-41	INDUCTOR	100uH		
L013	1-424-524-21	INDUCTOR	47uH		
L014	1-414-402-11	INDUCTOR	47uH		
L501	1-414-402-11	INDUCTOR	47uH		
L502	1-414-402-11	INDUCTOR	47uH		
		< IC LINK >			
⚠PS001	1-532-840-21	LINK, IC (1.25A) (DSR-20MDP)			
		< TRANSISTOR >			
Q001	8-729-216-22	TRANSISTOR	2SB709A-QRS-TX		
Q002	8-729-421-19	TRANSISTOR	UN2213-TX		
Q003	8-729-010-25	TRANSISTOR	MSD601-RT1		
Q004	8-729-421-22	TRANSISTOR	UN2211-TX		
Q008	8-729-010-25	TRANSISTOR	MSD601-RT1		
Q009	8-729-010-25	TRANSISTOR	MSD601-RT1		
Q012	8-729-208-96	TRANSISTOR	2SA1242-Y (TE16L)		
Q014	8-729-421-19	TRANSISTOR	UN2213-TX		
Q500	8-729-216-22	TRANSISTOR	2SB709A-QRS-TX		
Q501	8-729-216-22	TRANSISTOR	2SB709A-QRS-TX		
Q502	8-729-208-96	TRANSISTOR	2SA1242-Y (TE16L)		
Q503	8-729-421-19	TRANSISTOR	UN2213-TX		
Q504	8-729-421-19	TRANSISTOR	UN2213-TX		
		< RESISTOR >			
R001	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R002	1-216-065-91	RES, CHIP	4.7K	5%	1/10W
R003	1-216-015-00	METAL CHIP	39	5%	1/10W
R005	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R006	1-216-089-91	RES, CHIP	47K	5%	1/10W
R009	1-216-049-91	RES, CHIP	1K	5%	1/10W
R010	1-216-089-91	RES, CHIP	47K	5%	1/10W
R011	1-216-089-91	RES, CHIP	47K	5%	1/10W
R012	1-216-089-91	RES, CHIP	47K	5%	1/10W
R015	1-216-295-91	SHORT	0		
R016	1-216-089-91	RES, CHIP	47K	5%	1/10W
R017	1-216-295-91	SHORT	0		
R018	1-216-089-91	RES, CHIP	47K	5%	1/10W
R019	1-216-295-91	SHORT	0		

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

CM-56

Ref. No.	Part No.	Description			Remark
R020	1-216-093-91	RES, CHIP	68K	5%	1/10W
R021	1-216-089-91	RES, CHIP	47K	5%	1/10W
R026	1-216-049-91	RES, CHIP	1K	5%	1/10W
R027	1-216-089-91	RES, CHIP	47K	5%	1/10W
R028	1-216-049-91	RES, CHIP	1K	5%	1/10W
R029	1-216-049-91	RES, CHIP	1K	5%	1/10W
R030	1-216-049-91	RES, CHIP	1K	5%	1/10W
R032	1-216-049-91	RES, CHIP	1K	5%	1/10W
R033	1-216-049-91	RES, CHIP	1K	5%	1/10W
R035	1-216-025-91	RES, CHIP	100	5%	1/10W
R036	1-216-025-91	RES, CHIP	100	5%	1/10W
R039	1-216-075-00	METAL CHIP	12K	5%	1/10W
R040	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R046	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R050	1-216-077-91	RES, CHIP	15K	5%	1/10W
R051	1-216-073-00	METAL CHIP	10K	5%	1/10W
R052	1-216-089-91	RES, CHIP	47K	5%	1/10W
R053	1-216-049-91	RES, CHIP	1K	5%	1/10W
R054	1-216-295-91	SHORT	0		
R055	1-216-049-91	RES, CHIP	1K	5%	1/10W
R059	1-216-043-91	RES, CHIP	560	5%	1/10W
R060	1-216-049-91	RES, CHIP	1K	5%	1/10W
R061	1-216-049-91	RES, CHIP	1K	5%	1/10W
R063	1-216-049-91	RES, CHIP	1K	5%	1/10W
R064	1-216-049-91	RES, CHIP	1K	5%	1/10W
R066	1-216-025-91	RES, CHIP	100	5%	1/10W
R067	1-216-073-00	METAL CHIP	10K	5%	1/10W
R069	1-216-085-00	METAL CHIP	33K	5%	1/10W
R070	1-216-073-00	METAL CHIP	10K	5%	1/10W
R071	1-216-025-91	RES, CHIP	100	5%	1/10W
R075	1-216-049-91	RES, CHIP	1K	5%	1/10W
R076	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R077	1-216-025-91	RES, CHIP	100	5%	1/10W
R078	1-216-049-91	RES, CHIP	1K	5%	1/10W
R079	1-216-073-00	METAL CHIP	10K	5%	1/10W
R080	1-216-025-91	RES, CHIP	100	5%	1/10W
R081	1-216-049-91	RES, CHIP	1K	5%	1/10W
R082	1-216-073-00	METAL CHIP	10K	5%	1/10W
R083	1-216-089-91	RES, CHIP	47K	5%	1/10W
R084	1-216-025-91	RES, CHIP	100	5%	1/10W
R085	1-216-049-91	RES, CHIP	1K	5%	1/10W
R086	1-216-049-91	RES, CHIP	1K	5%	1/10W
R087	1-216-049-91	RES, CHIP	1K	5%	1/10W
R088	1-216-049-91	RES, CHIP	1K	5%	1/10W
R089	1-216-049-91	RES, CHIP	1K	5%	1/10W
R090	1-216-081-00	METAL CHIP	22K	5%	1/10W
R091	1-216-081-00	METAL CHIP	22K	5%	1/10W
R092	1-216-089-91	RES, CHIP	47K	5%	1/10W
R093	1-216-049-91	RES, CHIP	1K	5%	1/10W
R094	1-216-671-11	METAL CHIP	6.8K	0.5%	1/10W
R095	1-216-645-11	METAL CHIP	560	0.5%	1/10W
R096	1-216-651-11	METAL CHIP	1K	0.5%	1/10W
R097	1-216-073-00	METAL CHIP	10K	5%	1/10W
R098	1-216-121-91	RES, CHIP	1M	5%	1/10W
R099	1-216-105-91	RES, CHIP	220K	5%	1/10W
R102	1-216-089-91	RES, CHIP	47K	5%	1/10W
R103	1-216-089-91	RES, CHIP	47K	5%	1/10W
R104	1-216-295-91	SHORT	0		
R107	1-216-089-91	RES, CHIP	47K	5%	1/10W
R108	1-216-295-91	SHORT	0		

Ref. No.	Part No.	Description			Remark
R109	1-216-081-00	METAL CHIP	22K	5%	1/10W
R110	1-216-073-00	METAL CHIP	10K	5%	1/10W
R111	1-216-049-91	RES, CHIP	1K	5%	1/10W
R112	1-216-081-00	METAL CHIP	22K	5%	1/10W
R113	1-216-049-91	RES, CHIP	1K	5%	1/10W
R114	1-216-065-91	RES, CHIP	4.7K	5%	1/10W
R115	1-216-043-91	RES, CHIP	560	5%	1/10W
R116	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R117	1-216-043-91	RES, CHIP	560	5%	1/10W
R118	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R119	1-216-073-00	METAL CHIP	10K	5%	1/10W
R120	1-216-073-00	METAL CHIP	10K	5%	1/10W
R121	1-219-107-91	RES, CHIP	1.5	5%	1/8W
R122	1-219-107-91	RES, CHIP	1.5	5%	1/8W
R125	1-219-107-91	RES, CHIP	1.5	5%	1/8W
R126	1-216-049-91	RES, CHIP	1K	5%	1/10W
R127	1-216-049-91	RES, CHIP	1K	5%	1/10W
R128	1-216-049-91	RES, CHIP	1K	5%	1/10W
R129	1-216-049-91	RES, CHIP	1K	5%	1/10W
R130	1-216-025-91	RES, CHIP	100	5%	1/10W
R131	1-216-025-91	RES, CHIP	100	5%	1/10W
R132	1-216-025-91	RES, CHIP	100	5%	1/10W
R133	1-216-075-00	METAL CHIP	12K	5%	1/10W
R134	1-216-072-00	METAL CHIP	9.1K	5%	1/10W
R136	1-216-049-91	RES, CHIP	1K	5%	1/10W
R137	1-216-049-91	RES, CHIP	1K	5%	1/10W
R138	1-216-049-91	RES, CHIP	1K	5%	1/10W
R143	1-216-073-00	METAL CHIP	10K	5%	1/10W
R146	1-216-295-91	SHORT	0		
R148	1-216-017-91	RES, CHIP	47	5%	1/10W
R153	1-216-295-91	SHORT	0		
R154	1-216-295-91	SHORT	0		
R155	1-216-295-91	SHORT	0		
R158	1-216-121-91	RES, CHIP	1M	5%	1/10W
R161	1-216-295-91	SHORT	0		
R164	1-216-672-11	METAL CHIP	7.5K	0.5%	1/10W
R165	1-216-017-91	RES, CHIP	47	5%	1/10W
R167	1-216-017-91	RES, CHIP	47	5%	1/10W
R168	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R169	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R171	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R176	1-216-033-00	METAL CHIP	220	5%	1/10W
R182	1-216-121-91	RES, CHIP	1M	5%	1/10W
R193	1-216-079-00	METAL CHIP	18K	5%	1/10W
R194	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R195	1-216-079-00	METAL CHIP	18K	5%	1/10W
R196	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R201	1-216-073-00	METAL CHIP	10K	5%	1/10W
R203	1-216-121-91	RES, CHIP	1M	5%	1/10W
R206	1-216-073-00	METAL CHIP	10K	5%	1/10W
R207	1-216-073-00	METAL CHIP	10K	5%	1/10W
R208	1-216-045-00	METAL CHIP	680	5%	1/10W
R209	1-216-045-00	METAL CHIP	680	5%	1/10W
R211	1-216-671-11	METAL CHIP	6.8K	0.5%	1/10W
R212	1-216-645-11	METAL CHIP	560	0.5%	1/10W
R213	1-216-651-11	METAL CHIP	1K	0.5%	1/10W
R214	1-216-073-00	METAL CHIP	10K	5%	1/10W
R215	1-216-105-91	RES, CHIP	220K	5%	1/10W
R216	1-216-081-00	METAL CHIP	22K	5%	1/10W
R217	1-216-073-00	METAL CHIP	10K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R218	1-216-081-00	METAL CHIP	22K	5%	1/10W
R220	1-216-043-91	RES, CHIP	560	5%	1/10W
R221	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R225	1-216-295-91	SHORT	0		
R227	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R228	1-216-043-91	RES, CHIP	560	5%	1/10W
R229	1-216-048-00	METAL CHIP	910	5%	1/10W
R230	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R231	1-216-048-00	METAL CHIP	910	5%	1/10W
R232	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R233	1-216-089-91	RES, CHIP	47K	5%	1/10W
R234	1-216-075-00	METAL CHIP	12K	5%	1/10W
R235	1-216-072-00	METAL CHIP	9.1K	5%	1/10W
R241	1-216-073-00	METAL CHIP	10K	5%	1/10W
R244	1-216-077-91	RES, CHIP	15K	5%	1/10W
R245	1-217-671-11	METAL CHIP	1	5%	1/10W
R247	1-216-073-00	METAL CHIP	10K	5%	1/10W
R248	1-217-671-11	METAL CHIP	1	5%	1/10W
R249	1-217-671-11	METAL CHIP	1	5%	1/10W
R250	1-217-671-11	METAL CHIP	1	5%	1/10W
R253	1-216-073-00	METAL CHIP	10K	5%	1/10W
R256	1-216-075-00	METAL CHIP	12K	5%	1/10W
R257	1-216-079-00	METAL CHIP	18K	5%	1/10W
R259	1-216-295-91	SHORT	0		
R262	1-216-093-91	RES, CHIP	68K	5%	1/10W
R268	1-216-097-91	RES, CHIP	100K	5%	1/10W
R270	1-216-073-00	METAL CHIP	10K	5%	1/10W
R271	1-216-073-00	METAL CHIP	10K	5%	1/10W
R274	1-216-073-00	METAL CHIP	10K	5%	1/10W
R275	1-216-099-00	METAL CHIP	120K	5%	1/10W
R283	1-216-089-91	RES, CHIP	47K	5%	1/10W
R284	1-216-025-91	RES, CHIP	100	5%	1/10W
R285	1-216-025-91	RES, CHIP	100	5%	1/10W
R286	1-216-049-91	RES, CHIP	1K	5%	1/10W
R290	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R506	1-216-049-91	RES, CHIP	1K	5%	1/10W
R516	1-216-295-91	SHORT	0		
R517	1-216-665-11	METAL CHIP	3.9K	0.5%	1/10W
R518	1-216-655-11	METAL CHIP	1.5K	0.5%	1/10W
R519	1-216-089-91	RES, CHIP	47K	5%	1/10W
R520	1-216-089-91	RES, CHIP	47K	5%	1/10W
R521	1-216-089-91	RES, CHIP	47K	5%	1/10W
R524	1-216-089-91	RES, CHIP	47K	5%	1/10W
R525	1-216-025-91	RES, CHIP	100	5%	1/10W
R526	1-216-025-91	RES, CHIP	100	5%	1/10W
R528	1-216-295-91	SHORT	0		
R529	1-219-107-91	RES, CHIP	1.5	5%	1/8W
R530	1-219-107-91	RES, CHIP	1.5	5%	1/8W
R531	1-219-107-91	RES, CHIP	1.5	5%	1/8W
R535	1-216-089-91	RES, CHIP	47K	5%	1/10W
R536	1-216-295-91	SHORT	0		
R537	1-216-295-91	SHORT	0		
R538	1-216-295-91	SHORT	0		
R541	1-216-073-00	METAL CHIP	10K	5%	1/10W
R542	1-216-073-00	METAL CHIP	10K	5%	1/10W
R543	1-216-025-91	RES, CHIP	100	5%	1/10W
R545	1-216-065-91	RES, CHIP	4.7K	5%	1/10W
R546	1-216-073-00	METAL CHIP	10K	5%	1/10W
R547	1-216-025-91	RES, CHIP	100	5%	1/10W
R549	1-216-065-91	RES, CHIP	4.7K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R550	1-216-073-00	METAL CHIP	10K	5%	1/10W
R551	1-216-089-91	RES, CHIP	47K	5%	1/10W
R552	1-216-089-91	RES, CHIP	47K	5%	1/10W
R553	1-216-073-00	METAL CHIP	10K	5%	1/10W
R554	1-216-073-00	METAL CHIP	10K	5%	1/10W
R555	1-216-073-00	METAL CHIP	10K	5%	1/10W
R556	1-216-025-91	RES, CHIP	100	5%	1/10W
R560	1-216-065-91	RES, CHIP	4.7K	5%	1/10W
R561	1-216-049-91	RES, CHIP	1K	5%	1/10W
R562	1-216-049-91	RES, CHIP	1K	5%	1/10W
R563	1-216-049-91	RES, CHIP	1K	5%	1/10W
R564	1-216-049-91	RES, CHIP	1K	5%	1/10W
R565	1-216-049-91	RES, CHIP	1K	5%	1/10W
R566	1-216-049-91	RES, CHIP	1K	5%	1/10W
R567	1-216-017-91	RES, CHIP	47	5%	1/10W
R568	1-216-017-91	RES, CHIP	47	5%	1/10W
R569	1-216-017-91	RES, CHIP	47	5%	1/10W
R570	1-216-017-91	RES, CHIP	47	5%	1/10W
R572	1-216-295-91	SHORT	0		
R573	1-216-049-91	RES, CHIP	1K	5%	1/10W
R574	1-216-049-91	RES, CHIP	1K	5%	1/10W
R575	1-216-049-91	RES, CHIP	1K	5%	1/10W
R901	1-216-295-91	SHORT	0 (DSR-20MD)		
R902	1-216-295-91	SHORT	0 (DSR-20MDP)		
		< VIBRATOR >			
X001	1-760-655-21	VIBRATOR, CRYSTAL (20MHz)			
		FP-406 BOARD (Ref No. 5,000 Series)			
		**********			
	1-658-990-11	FP-406 FLEXIBLE BOARD			
	3-318-201-11	SCREW (B) (1.4X3), TAPPING			
	3-967-690-01	HOLDER, MIC			
	3-970-665-01	CLEANER, MIC			
		< CONNECTOR >			
CN901	1-770-312-21	CONNECTOR 4P			
		< SWITCH >			
S901	1-762-551-11	SWITCH, PUSH (REC PROOF)			
S902	1-572-288-11	SWITCH, PUSH (C IN)			
*	A-7074-111-A	FR-136 BOARD, COMPLETE			
		**********			
		(Ref.No. 5,000 Series)			
*	3-987-166-01	HOLDER, INDICATION TUBE			
		< BUZZER >			
BZ101	1-529-104-11	BUZZER, PIEZOELECTRIC			
		< CAPACITOR >			
C109	1-113-682-11	TANTALUM CHIP	33uF	20%	10V
C110	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C111	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C112	1-113-682-11	TANTALUM CHIP	33uF	20%	10V
C113	1-113-682-11	TANTALUM CHIP	33uF	20%	10V
C114	1-164-156-11	CERAMIC CHIP	0.1uF		25V

FR-136

Ref. No.	Part No.	Description			Remark
C115	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V
C116	1-126-934-11	ELECT	220uF	20%	10V
C117	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V
C118	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V
		< CONNECTOR >			
CN104	1-774-770-11	CONNECTOR, FFC/FPC 30P			
		< DIODE >			
D101	8-719-104-34	DIODE MA151WA-TX			
D108	8-719-061-58	DIODE CL-200Y-C-TU (DUP)			
D109	8-719-061-58	DIODE CL-200Y-C-TU (REC)			
D110	8-719-061-58	DIODE CL-200Y-C-TU (PAUSE)			
D111	8-719-061-58	DIODE CL-200Y-C-TU (FF)			
D112	8-719-066-82	DIODE CL-200YG-C-TU (PLAY)			
D113	8-719-027-84	DIODE CL-155UR/G-DT (ON/STANDBY)			
D114	8-719-106-08	DIODE RD6.2M-T1B2			
D115	8-719-106-08	DIODE RD6.2M-T1B2			
D116	8-719-106-08	DIODE RD6.2M-T1B2			
D117	8-719-061-58	DIODE CL-200Y-C-TU (REW)			
		< FERRITE BEAD >			
FB101	1-414-445-11	FERRITE	0uH		
FB102	1-414-445-11	FERRITE	0uH		
FB103	1-414-445-11	FERRITE	0uH		
FB104	1-414-445-11	FERRITE	0uH		
FB105	1-414-445-11	FERRITE	0uH		
FB106	1-414-445-11	FERRITE	0uH		
FB107	1-414-445-11	FERRITE	0uH		
FB108	1-414-445-11	FERRITE	0uH		
FB109	1-414-445-11	FERRITE	0uH		
FB110	1-414-445-11	FERRITE	0uH		
FB111	1-414-445-11	FERRITE	0uH		
FB112	1-414-229-11	INDUCTOR CHIP	0uH		
FB113	1-414-229-11	INDUCTOR CHIP	0uH		
FB114	1-414-229-11	INDUCTOR CHIP	0uH		
FB115	1-414-229-11	INDUCTOR CHIP	0uH		
FB116	1-414-229-11	INDUCTOR CHIP	0uH		
FB117	1-414-229-11	INDUCTOR CHIP	0uH		
FB118	1-414-445-11	FERRITE	0uH		
		< IC >			
IC103	8-759-056-81	IC M66312FP-T1			
IC104	8-759-438-82	IC uPD16311GC-AB6			
IC105	8-749-923-29	IC RS-20E-T			
		< FLUORESCENT INDICATOR >			
ND101	1-517-769-11	TUBE, FLUORESCENT INDICATOR			
		< TRANSISTOR >			
Q101	8-729-424-18	TRANSISTOR	UN2113-TX		
Q103	8-729-421-19	TRANSISTOR	UN2213-TX		
Q104	8-729-421-19	TRANSISTOR	UN2213-TX		
Q105	8-729-421-19	TRANSISTOR	UN2213-TX		
Q106	8-729-421-19	TRANSISTOR	UN2213-TX		
Q107	8-729-421-19	TRANSISTOR	UN2213-TX		
Q110	8-729-421-19	TRANSISTOR	UN2213-TX		
		< RESISTOR >			

Ref. No.	Part No.	Description			Remark
R103	1-216-842-11	METAL CHIP	56K	5%	1/16W
R105	1-216-811-11	METAL CHIP	150	5%	1/16W
R106	1-216-841-11	METAL CHIP	47K	5%	1/16W
R107	1-216-841-11	METAL CHIP	47K	5%	1/16W
R108	1-216-841-11	METAL CHIP	47K	5%	1/16W
R109	1-216-841-11	METAL CHIP	47K	5%	1/16W
R110	1-216-841-11	METAL CHIP	47K	5%	1/16W
R111	1-216-841-11	METAL CHIP	47K	5%	1/16W
R112	1-216-841-11	METAL CHIP	47K	5%	1/16W
R113	1-216-841-11	METAL CHIP	47K	5%	1/16W
R114	1-216-837-11	METAL CHIP	22K	5%	1/16W
R115	1-216-837-11	METAL CHIP	22K	5%	1/16W
R116	1-216-817-11	METAL CHIP	470	5%	1/16W
R119	1-216-797-11	METAL CHIP	10	5%	1/16W
R120	1-216-797-11	METAL CHIP	10	5%	1/16W
R121	1-216-797-11	METAL CHIP	10	5%	1/16W
R122	1-216-797-11	METAL CHIP	10	5%	1/16W
R123	1-216-841-11	METAL CHIP	47K	5%	1/16W
R124	1-216-837-11	METAL CHIP	22K	5%	1/16W
R125	1-216-833-91	RES, CHIP	10K	5%	1/16W
R126	1-216-833-91	RES, CHIP	10K	5%	1/16W
R129	1-216-837-11	METAL CHIP	22K	5%	1/16W
R130	1-216-833-91	RES, CHIP	10K	5%	1/16W
R131	1-216-833-91	RES, CHIP	10K	5%	1/16W
R138	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R139	1-216-837-11	METAL CHIP	22K	5%	1/16W
R140	1-216-833-91	RES, CHIP	10K	5%	1/16W
R141	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R142	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R143	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R144	1-216-845-11	METAL CHIP	100K	5%	1/16W
R145	1-216-797-11	METAL CHIP	10	5%	1/16W
R146	1-216-797-11	METAL CHIP	10	5%	1/16W
R147	1-216-797-11	METAL CHIP	10	5%	1/16W
R148	1-216-797-11	METAL CHIP	10	5%	1/16W
R149	1-216-821-11	METAL CHIP	1K	5%	1/16W
R151	1-216-811-11	METAL CHIP	150	5%	1/16W
R152	1-216-811-11	METAL CHIP	150	5%	1/16W
R153	1-216-811-11	METAL CHIP	150	5%	1/16W
R154	1-216-811-11	METAL CHIP	150	5%	1/16W
R155	1-216-811-11	METAL CHIP	150	5%	1/16W
R156	1-216-811-11	METAL CHIP	150	5%	1/16W
		< SWITCH >			
S101	1-762-333-21	SWITCH, TACTILE (RESET)			
S102	1-572-272-11	SWITCH, SLIDE (LOCAL/REMOTE)			
S104	1-572-342-11	SWITCH, SLIDE (TIMER)			
S105	1-572-342-11	SWITCH, SLIDE (AUDIO MONITOR)			
S106	1-762-333-21	SWITCH, TACTILE (INPUT SELECT)			
S107	1-572-342-11	SWITCH, SLIDE (COUNTER SELECT)			
S108	1-692-838-21	SWITCH, TACTILE (RUBBER) (EJECT)			
S109	1-692-838-21	SWITCH, TACTILE (RUBBER) (COUNTER RESET)			
S111	1-692-838-21	SWITCH, TACTILE (RUBBER) (STOP)			
S112	1-692-838-21	SWITCH, TACTILE (RUBBER) (REW)			
S113	1-692-838-21	SWITCH, TACTILE (RUBBER) (PLAY)			
S114	1-692-838-21	SWITCH, TACTILE (RUBBER) (FF)			
S115	1-692-838-21	SWITCH, TACTILE (RUBBER) (PAUSE)			
S116	1-692-838-21	SWITCH, TACTILE (RUBBER) (REC)			
S117	1-762-333-21	SWITCH, TACTILE (↓)			

Ref. No.	Part No.	Description			Remark
S118	1-762-333-21	SWITCH, TACTILE (↑)			
S119	1-762-333-21	SWITCH, TACTILE (SET)			
S120	1-762-333-21	SWITCH, TACTILE (MENU)			
S121	1-692-838-21	SWITCH, TACTILE (RUBBER) (POWER)			
S122	1-692-838-21	SWITCH, TACTILE (RUBBER) (DUP)			
*	A-7073-576-A	HG-1 BOARD, COMPLETE			
		**********			
		(Ref.No. 8,000 Series)			
		< CAPACITOR >			
C001	1-163-145-00	CERAMIC CHIP	0.0015uF	5%	50V
C002	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C003	1-126-157-11	ELECT	10uF	20%	16V
C004	1-124-259-11	ELECT	4.7uF	20%	35V
C005	1-126-157-11	ELECT	10uF	20%	16V
		< CONNECTOR >			
CN001	1-958-813-11	HARNESS (DH-50)			
CN002	1-506-489-11	PIN, CONNECTOR 10P			
		< DIODE >			
D001	8-719-106-89	DIODE RD15M-T1B2			
D002	8-719-106-89	DIODE RD15M-T1B2			
D003	8-719-800-76	DIODE 1SS123-T1			
D004	8-719-800-76	DIODE 1SS123-T1			
D005	8-719-022-76	DIODE RD30M-T1B			
D006	8-719-022-76	DIODE RD30M-T1B			
		< IC >			
IC001	8-759-248-87	IC MM1256XF-BE			
IC002	8-759-929-26	IC TL431CPSR			
		< TRANSISTOR >			
Q001	8-729-120-28	TRANSISTOR	2SC1623-T1-L5L6		
Q002	8-729-120-28	TRANSISTOR	2SC1623-T1-L5L6		
Q003	8-729-120-28	TRANSISTOR	2SC1623-T1-L5L6		
Q004	8-729-014-91	TRANSISTOR	2SD2185S-TX		
		< RESISTOR >			
R001	1-208-830-11	METAL CHIP	100K	0.5%	1/10W
R002	1-208-830-11	METAL CHIP	100K	0.5%	1/10W
R003	1-208-830-11	METAL CHIP	100K	0.5%	1/10W
R004	1-208-848-11	METAL CHIP	560K	0.5%	1/10W
R005	1-208-830-11	METAL CHIP	100K	0.5%	1/10W
R007	1-208-830-11	METAL CHIP	100K	0.5%	1/10W
R008	1-208-814-91	METAL CHIP	22K	0.5%	1/10W
R009	1-208-806-11	METAL CHIP	10K	0.5%	1/10W
R010	1-208-822-11	METAL CHIP	47K	0.5%	1/10W
R011	1-208-822-11	METAL CHIP	47K	0.5%	1/10W
R012	1-216-208-00	RES, CHIP	2.7K	5%	1/8W
R013	1-216-208-00	RES, CHIP	2.7K	5%	1/8W
R014	1-208-795-11	METAL CHIP	3.6K	0.5%	1/10W
R015	1-216-208-00	RES, CHIP	2.7K	5%	1/8W
R016	1-216-208-00	RES, CHIP	2.7K	5%	1/8W
		< RELAY >			
RY001	1-755-259-11	RELAY			

Ref. No.	Part No.	Description			Remark
*	A-7073-471-A	HP-100 BOARD, COMPLETE			
		**********			
		(Ref.No. 5,000 Series)			
		< CAPACITOR >			
C001	1-128-004-11	ELECT CHIP	10uF	20%	16V
C002	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C003	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C004	1-128-004-11	ELECT CHIP	10uF	20%	16V
C005	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C006	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C007	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C008	1-128-004-11	ELECT CHIP	10uF	20%	16V
C009	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C010	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C011	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
		< CONNECTOR >			
CN001	1-566-528-11	CONNECTOR, FPC (ZIF) 12P			
		< DIODE >			
D001	8-719-421-59	DIODE MA3075WA- (TX)			
D002	8-719-421-59	DIODE MA3075WA- (TX)			
D003	8-719-421-59	DIODE MA3075WA- (TX)			
D004	8-719-421-59	DIODE MA3075WA- (TX)			
D005	8-719-421-59	DIODE MA3075WA- (TX)			
D006	8-719-421-59	DIODE MA3075WA- (TX)			
D007	8-719-421-59	DIODE MA3075WA- (TX)			
D008	8-719-421-59	DIODE MA3075WA- (TX)			
D009	8-719-421-59	DIODE MA3075WA- (TX)			
D010	8-719-421-59	DIODE MA3075WA- (TX)			
D011	8-719-421-59	DIODE MA3075WA- (TX)			
D012	8-719-421-59	DIODE MA3075WA- (TX)			
		< FERRITE BEAD >			
FB001	1-500-241-22	FERRITE	0uH		
FB002	1-500-241-22	FERRITE	0uH		
FB003	1-500-241-22	FERRITE	0uH		
		< IC >			
IC001	8-759-369-73	IC NJM4556AM-A-TE2			
		< JACK >			
J001	1-569-809-11	JACK (SMALL TYPE) (PHONES)			
		< RESISTOR >			
R001	1-216-833-91	RES, CHIP	10K	5%	1/16W
R002	1-216-821-11	METAL CHIP	1K	5%	1/16W
R003	1-216-821-11	METAL CHIP	1K	5%	1/16W
R004	1-216-833-91	RES, CHIP	10K	5%	1/16W
R005	1-216-835-11	METAL CHIP	15K	5%	1/16W
R006	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R007	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R008	1-216-835-11	METAL CHIP	15K	5%	1/16W
R009	1-216-821-11	METAL CHIP	1K	5%	1/16W
R010	1-216-821-11	METAL CHIP	1K	5%	1/16W
R011	1-216-809-11	METAL CHIP	100	5%	1/16W
R012	1-216-809-11	METAL CHIP	100	5%	1/16W

Ref. No.	Part No.	Description	Remark
		< VARIABLE RESISTOR >	
RV001	1-238-612-11	RES, VAR, CARBON 20K/20K (PHONE LEVEL)	
RV002	1-238-744-11	RES, VAR, CARBON, 50K (L REC LEVEL)	
RV003	1-238-744-11	RES, VAR, CARBON, 50K (R REC LEVEL)	
*	A-7067-130-A	JC-19 BOARD, COMPLETE (DSR-20MD)	
*	A-7067-126-A	JC-19 BOARD, COMPLETE (DSR-20MDP)	
		**********	
		(Ref.No. 2,000 Series)	
	7-685-132-19	SCREW +P 2.6X5 TYPE2 NON-SLIT	
		< CAPACITOR >	
C101	1-104-847-11	TANTALUM CHIP 22uF 20%	4V
C102	1-104-847-11	TANTALUM CHIP 22uF 20%	4V
C103	1-104-847-11	TANTALUM CHIP 22uF 20%	4V
C107	1-135-177-21	TANTALUM CHIP 1uF 20%	20V
C108	1-135-177-21	TANTALUM CHIP 1uF 20%	20V
C109	1-135-177-21	TANTALUM CHIP 1uF 20%	20V
C110	1-135-259-11	TANTALUM CHIP 10uF 20%	6.3V
C111	1-135-259-11	TANTALUM CHIP 10uF 20%	6.3V
C112	1-135-259-11	TANTALUM CHIP 10uF 20%	6.3V
C116	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C117	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C118	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C119	1-162-915-11	CERAMIC CHIP 10PF 0.5PF	50V
C120	1-162-915-11	CERAMIC CHIP 10PF 0.5PF	50V
C121	1-162-915-11	CERAMIC CHIP 10PF 0.5PF	50V
C122	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C123	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C124	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C125	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C127	1-135-259-11	TANTALUM CHIP 10uF 20%	6.3V
C128	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C129	1-135-259-11	TANTALUM CHIP 10uF 20%	6.3V
C130	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C131	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C132	1-135-259-11	TANTALUM CHIP 10uF 20%	6.3V
C133	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C135	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C136	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C137	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C138	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C139	1-135-259-11	TANTALUM CHIP 10uF 20%	6.3V
C141	1-135-259-11	TANTALUM CHIP 10uF 20%	6.3V
C143	1-135-259-11	TANTALUM CHIP 10uF 20%	6.3V
C148	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C149	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C150	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C151	1-135-259-11	TANTALUM CHIP 10uF 20%	6.3V
C152	1-135-259-11	TANTALUM CHIP 10uF 20%	6.3V
C153	1-135-259-11	TANTALUM CHIP 10uF 20%	6.3V
C154	1-135-259-11	TANTALUM CHIP 10uF 20%	6.3V
C155	1-135-259-11	TANTALUM CHIP 10uF 20%	6.3V
C156	1-135-259-11	TANTALUM CHIP 10uF 20%	6.3V
C157	1-135-259-11	TANTALUM CHIP 10uF 20%	6.3V
C158	1-135-259-11	TANTALUM CHIP 10uF 20%	6.3V
C159	1-135-259-11	TANTALUM CHIP 10uF 20%	6.3V
C160	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C161	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C162	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C163	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C164	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C165	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C166	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C167	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C168	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C170	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C171	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C172	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C173	1-110-569-11	TANTALUM CHIP 47uF 20%	6.3V
C174	1-110-569-11	TANTALUM CHIP 47uF 20%	6.3V
C175	1-110-569-11	TANTALUM CHIP 47uF 20%	6.3V
C179	1-135-259-11	TANTALUM CHIP 10uF 20%	6.3V
C180	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C181	1-162-921-11	CERAMIC CHIP 33PF 5%	50V
C182	1-135-259-11	TANTALUM CHIP 10uF 20%	6.3V
C183	1-135-259-11	TANTALUM CHIP 10uF 20%	6.3V
C184	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C185	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C186	1-104-847-11	TANTALUM CHIP 22uF 20%	4V
C187	1-104-847-11	TANTALUM CHIP 22uF 20%	4V
C201	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C202	1-164-357-11	CERAMIC CHIP 1000PF 5%	50V
C203	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C204	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C205	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C206	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C207	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C208	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C209	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C210	1-135-259-11	TANTALUM CHIP 10uF 20%	6.3V
C211	1-107-826-91	CERAMIC CHIP 0.1uF 10%	16V
C212	1-104-847-11	TANTALUM CHIP 22uF 20%	4V
C214	1-162-926-11	CERAMIC CHIP 82PF 5%	50V
C215	1-164-392-11	CERAMIC CHIP 390PF 5%	50V
C216	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C217	1-135-259-11	TANTALUM CHIP 10uF 20%	6.3V
C218	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C219	1-135-259-11	TANTALUM CHIP 10uF 20%	6.3V
C220	1-110-569-11	TANTALUM CHIP 47uF 20%	6.3V
C221	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C223	1-135-177-21	TANTALUM CHIP 1uF 20%	20V
C224	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C225	1-135-177-21	TANTALUM CHIP 1uF 20%	20V
C226	1-162-968-11	CERAMIC CHIP 0.0047uF 10%	50V
C227	1-162-967-11	CERAMIC CHIP 0.0033uF 10%	50V
C229	1-104-912-11	TANTALUM CHIP 3.3uF 20%	16V
C231	1-164-315-11	CERAMIC CHIP 470PF 5%	50V
C233	1-162-907-11	CERAMIC CHIP 2PF 0.25PF	50V
C234	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C238	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C241	1-162-964-11	CERAMIC CHIP 0.001uF 10%	50V
C243	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C245	1-162-917-11	CERAMIC CHIP 15PF 5%	50V
C246	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C247	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C248	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C249	1-110-569-11	TANTALUM CHIP 47uF 20%	4V
C250	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V

Ref. No.	Part No.	Description			Remark
C252	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C253	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C254	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C255	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V
C256	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C257	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V
C258	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C259	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C260	1-104-912-11	TANTALUM CHIP	3.3uF	20%	16V
C261	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C262	1-165-128-11	CERAMIC CHIP	0.22uF		16V
C401	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C402	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C403	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C404	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C405	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C406	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C407	1-135-259-11	TANTALUM CHIP	10uF	20%	6.3V
C408	1-135-259-11	TANTALUM CHIP	10uF	20%	6.3V
C410	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C412	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C413	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C421	1-111-253-11	TANTALUM CHIP	100uF	20%	6.3V
C422	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C423	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C424	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C425	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C426	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C427	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C428	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C429	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C430	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C431	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C432	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C433	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C434	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C435	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C436	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C437	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C438	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C439	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C440	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C441	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C442	1-135-259-11	TANTALUM CHIP	10uF	20%	6.3V
C501	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C502	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C503	1-104-851-11	TANTALUM CHIP	10uF	20%	10V
C504	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C505	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C506	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C511	1-135-259-11	TANTALUM CHIP	10uF	20%	6.3V
C512	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C513	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C514	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C515	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C516	1-104-847-11	TANTALUM CHIP	22uF	20%	4V
C517	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C518	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C519	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C520	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C521	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C522	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C523	1-104-851-11	TANTALUM CHIP	10uF	20%	10V
C524	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C701	1-135-259-11	TANTALUM CHIP	10uF	20%	6.3V
C702	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C703	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C704	1-135-259-11	TANTALUM CHIP	10uF	20%	6.3V
C705	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C706	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C707	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C708	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C709	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C710	1-104-847-11	TANTALUM CHIP	22uF	20%	4V
C711	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C712	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C713	1-164-230-11	CERAMIC CHIP	220PF	5%	50V
C714	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C715	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C801	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C802	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C803	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C804	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C807	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V
C809	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C810	1-110-569-11	TANTALUM CHIP	47uF	20%	6.3V
C811	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C812	1-110-569-11	TANTALUM CHIP	47uF	20%	6.3V
C813	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C814	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C815	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C816	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C831	1-135-259-11	TANTALUM CHIP	10uF	20%	6.3V
C832	1-135-259-11	TANTALUM CHIP	10uF	20%	6.3V
C833	1-110-569-11	TANTALUM CHIP	47uF	20%	6.3V
C834	1-135-151-21	TANTALUM CHIP	4.7uF	20%	4V
C835	1-135-151-21	TANTALUM CHIP	4.7uF	20%	4V
C837	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C838	1-135-259-11	TANTALUM CHIP	10uF	20%	6.3V
C839	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C840	1-135-259-11	TANTALUM CHIP	10uF	20%	6.3V
C843	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C844	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C845	1-104-847-11	TANTALUM CHIP	22uF	20%	4V
C846	1-104-847-11	TANTALUM CHIP	22uF	20%	4V
C847	1-164-676-11	CERAMIC CHIP	2200PF	5%	16V
C848	1-164-676-11	CERAMIC CHIP	2200PF	5%	16V
C849	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C850	1-164-392-11	CERAMIC CHIP	390PF	5%	50V
C851	1-164-392-11	CERAMIC CHIP	390PF	5%	50V
C852	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C853	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C854	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C855	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C856	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C857	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C859	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C860	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C861	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C862	1-135-151-21	TANTALUM CHIP	4.7uF	20%	4V

JC-19

Ref. No.	Part No.	Description			Remark
C863	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C864	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C865	1-110-569-11	TANTALUM CHIP	47uF	20%	6.3V
C901	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C902	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C903	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C904	1-135-259-11	TANTALUM CHIP	10uF	20%	6.3V
C905	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C906	1-110-569-11	TANTALUM CHIP	47uF	20%	6.3V
C907	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C908	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C909	1-135-259-11	TANTALUM CHIP	10uF	20%	6.3V
C910	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C911	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C912	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C914	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C915	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C916	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C917	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C919	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V
C920	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V
C921	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V
C922	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C924	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C926	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C927	1-162-908-11	CERAMIC CHIP	3PF	0.25PF	50V
C929	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V
C930	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C931	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C932	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C933	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V
C934	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C935	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C936	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C937	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V
C940	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V
C941	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C942	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
		< CONNECTOR >			
CN101	1-506-474-11	PIN, CONNECTOR 9P			
CN103	1-774-666-11	CONNECTOR, FFC/FPC 30P			
CN104	1-774-666-11	CONNECTOR, FFC/FPC 30P			
CN411	1-750-345-11	CONNECTOR, FFC/EPC (ZIF) 30P			
CN412	1-750-345-11	CONNECTOR, FFC/EPC (ZIF) 30P			
* CN501	1-691-591-11	PIN, CONNECTOR (1.5mm) (SMD) 8P			
CN503	1-750-303-41	CONNECTOR, BOARD TO BOARD 20P			
* CN701	1-564-005-11	PIN, CONNECTOR 6P			
* CN831	1-691-591-11	PIN, CONNECTOR (1.5mm) (SMD) 8P			
		< TRIMMER >			
CT201	1-141-423-61	CAP, ADJ 20PF (AFC)			
		< DIODE >			
D201	8-719-041-39	DIODE KV1470TL00			
D421	8-719-027-95	DIODE HSM88WK-TL			
D422	8-719-055-86	DIODE KV1470TL1-3			
D423	8-719-027-95	DIODE HSM88WK-TL			
D424	8-719-055-86	DIODE KV1470TL1-3			
D425	8-719-055-86	DIODE KV1470TL1-3			

Ref. No.	Part No.	Description	Remark
D501	8-719-073-01	DIODE MA111-TX	
D503	8-719-421-27	DIODE MA728-TX	
D504	8-719-073-01	DIODE MA111-TX	
D901	8-719-073-01	DIODE MA111-TX	
D902	8-719-055-86	DIODE KV1470TL1-3	
D903	8-719-073-01	DIODE MA111-TX	
D910	8-719-073-01	DIODE MA111-TX	
		< FERRITE BEAD >	
FB401	1-543-955-22	FERRITE 0uH	
FB402	1-543-955-22	FERRITE 0uH	
		< FILTER >	
FL101	1-233-345-21	FILTER, LOW PASS (5.5MHz)	
FL102	1-233-345-21	FILTER, LOW PASS (5.5MHz)	
FL103	1-233-345-21	FILTER, LOW PASS (5.5MHz)	
		< IC >	
IC009	8-759-338-78	IC BA10324AFV-E2	
IC010	8-759-338-78	IC BA10324AFV-E2	
IC011	8-759-338-78	IC BA10324AFV-E2	
IC012	8-759-338-78	IC BA10324AFV-E2	
IC013	8-759-510-71	IC BA10358F-E2	
IC014	8-759-359-51	IC NJM431M (TE2)	
IC015	8-752-352-09	IC CXD2300Q-T4	
IC016	8-752-352-09	IC CXD2300Q-T4	
IC017	8-752-352-09	IC CXD2300Q-T4	
IC018	8-759-523-03	IC TC74HC4066AFT (EL)	
IC019	8-759-447-75	IC S-81322HG-KW-T1	
IC200	8-752-380-04	IC CXD3100R	
IC205	8-759-343-09	IC CXD2193AR-ER	
IC206	8-759-058-62	IC TC7S08FU (TE85R)	
IC207	8-759-368-81	IC TK11630UTL	
IC209	8-759-523-97	IC TC74VHC123AFT (EL)	
IC210	8-759-485-79	IC TC7SET08FU (TE85R)	
IC211	8-759-239-58	IC TC74HC221AF (EL)	
IC212	8-759-082-55	IC TC7W00FU (TE12R)	
IC213	8-759-523-02	IC TC74HC4053AFT (EL)	
IC214	8-759-491-31	IC TC74VHCT00AF (EL)	
IC401	8-752-380-73	IC CXD3103R	
IC402	8-759-328-28	IC ZA4024	
IC403	8-759-328-28	IC ZA4024	
IC410	8-759-433-17	IC uPD482445LG4-B10-9MH-E2-HDC	
IC411	8-759-525-63	IC uPD82094GD-001-LKL	
IC421	8-752-884-57	IC CXP912032-074R	
IC422	8-752-378-75	IC CXD3106R	
IC501	8-759-537-46	IC S579174PZ-TEB	
IC502	8-759-445-93	IC AK6440AM-E2	
IC503	8-759-058-58	IC TC7S04FU (TE85R)	
IC504	8-759-427-85	IC MB88146APFV-G-BND-ER	
IC510	8-759-431-95	IC S-81230SGUP-DQB-T1	
IC511	8-759-512-69	IC S-81350HG-KD-T1	
IC701	8-759-430-56	IC CXD2194AR	
IC702	8-759-432-00	IC TSB11LV01PT-TEB	
IC703	8-759-465-99	IC HD6433837TB55X	
IC801	8-752-352-30	IC CXD2705AQ	
IC802	8-759-530-57	IC TLV431ACDBV2	
IC804	8-759-465-80	IC TC74ACT08FS (EL)	
IC805	8-752-379-31	IC CXD3107R	
IC807	8-759-475-36	IC TC74LCX08FT (EL)	

Ref. No.	Part No.	Description	Remark
IC831	8-759-358-47	IC NJM2115V (TE2)	
IC832	8-759-358-47	IC NJM2115V (TE2)	
IC833	8-759-358-47	IC NJM2115V (TE2)	
IC835	8-759-358-47	IC NJM2115V (TE2)	
IC836	8-759-358-47	IC NJM2115V (TE2)	
IC837	8-759-471-38	IC AK4520A-VF-E2	
IC838	8-759-357-67	IC TK15125MTL	
IC840	8-759-358-47	IC NJM2115V (TE2)	
IC841	8-759-494-88	IC TC75S56F (TE85R)	
IC901	8-759-523-97	IC TC74VHC123AFT (EL)	
IC902	8-759-523-95	IC TC74VHC74FT (EL))	
IC903	8-759-083-94	IC TC7W74FU (TE12R)	
IC904	8-759-429-28	IC CXD8630R	
IC906	8-759-523-97	IC TC74VHC123AFT (EL)	
IC907	8-759-195-81	IC TC7S86FU (TE85R)	
IC908	8-759-082-58	IC TC7W08FU (TE12R)	
IC909	8-759-523-95	IC TC74VHC74FT (EL)	
IC911	8-759-327-04	IC CXD2913Q	
IC914	8-759-485-40	IC TLV2231CDBV2	
IC915	8-759-082-61	IC TC4W53FU (TE12R)	
IC916	8-759-058-62	IC TC7S08FU (TE85R)	
		< COIL >	
L011	1-414-398-11	INDUCTOR 10uH	
L012	1-414-398-11	INDUCTOR 10uH	
L013	1-414-398-11	INDUCTOR 10uH	
L014	1-414-398-11	INDUCTOR 10uH	
L015	1-414-398-11	INDUCTOR 10uH	
L016	1-414-398-11	INDUCTOR 10uH	
L017	1-414-398-11	INDUCTOR 10uH	
L018	1-414-398-11	INDUCTOR 10uH	
L102	1-414-398-11	INDUCTOR 10uH	
L200	1-414-398-11	INDUCTOR 10uH	
L202	1-410-390-11	INDUCTOR CHIP 56uH	
L203	1-414-398-11	INDUCTOR 10uH	
L204	1-414-398-11	INDUCTOR 10uH	
L205	1-411-275-21	COIL, VARIABLE	
L206	1-410-655-31	INDUCTOR CHIP 120uH	
L401	1-414-398-11	INDUCTOR 10uH	
L402	1-414-398-11	INDUCTOR 10uH	
L421	1-410-740-31	INDUCTOR CHIP 0.82uH	
L422	1-410-378-11	INDUCTOR CHIP 5.6uH	
L423	1-414-398-11	INDUCTOR 10uH	
L424	1-410-385-11	INDUCTOR CHIP 22uH	
L501	1-414-398-11	INDUCTOR 10uH	
L701	1-410-377-31	INDUCTOR CHIP 4.7uH	
L702	1-414-398-11	INDUCTOR 10uH	
L703	1-410-393-11	INDUCTOR CHIP 100uH	
L801	1-410-369-11	INDUCTOR CHIP 1uH	
L802	1-410-381-11	INDUCTOR CHIP 10uH	
L901	1-414-398-11	INDUCTOR 10uH	
L904	1-414-398-11	INDUCTOR 10uH	
L905	1-411-273-21	COIL, VARIABLE	
L907	1-414-398-11	INDUCTOR 10uH	
		< TRANSISTOR >	
Q026	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q027	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q028	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q029	8-729-202-38	TRANSISTOR 2SC3326N-TE85L-B	
Q030	8-729-202-38	TRANSISTOR 2SC3326N-TE85L-B	
Q031	8-729-202-38	TRANSISTOR 2SC3326N-TE85L-B	
Q032	8-729-026-52	TRANSISTOR 2SA1576A-T106-R	
Q033	8-729-026-52	TRANSISTOR 2SA1576A-T106-R	
Q034	8-729-026-52	TRANSISTOR 2SA1576A-T106-R	
Q035	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q036	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q037	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q039	8-729-026-52	TRANSISTOR 2SA1576A-T106-R	
Q040	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q041	8-729-026-52	TRANSISTOR 2SA1576A-T106-R	
Q042	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q043	8-729-026-52	TRANSISTOR 2SA1576A-T106-R	
Q044	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q045	8-729-026-52	TRANSISTOR 2SA1576A-T106-R	
Q048	8-729-402-42	TRANSISTOR UN5213-TX	
Q050	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q051	8-729-427-83	TRANSISTOR XP6501-TXE	
Q052	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q053	8-729-427-83	TRANSISTOR XP6501-TXE	
Q200	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q201	8-729-026-52	TRANSISTOR 2SA1576A-T106-R	
Q501	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q502	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q504	8-729-403-35	TRANSISTOR UN5113-TX	
Q505	8-729-427-70	TRANSISTOR XP4401-TXE	
Q506	8-729-101-07	TRANSISTOR 2SB798-T1-DLDK	
Q801	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q832	8-729-015-74	TRANSISTOR UN5111-TX	
Q902	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q903	8-729-402-42	TRANSISTOR UN5213-TX	
Q910	8-729-015-76	TRANSISTOR UN5211-TX	
Q911	8-729-015-76	TRANSISTOR UN5211-TX	
		< RESISTOR >	
R002	1-216-864-11	METAL CHIP 0 5% 1/16W	
R003	1-414-760-21	FERRITE 0uH	
R004	1-414-760-21	FERRITE 0uH	
R005	1-414-760-21	FERRITE 0uH	
R009	1-414-760-21	FERRITE 0uH	
R010	1-216-864-11	METAL CHIP 0 5% 1/16W	
R011	1-216-864-11	METAL CHIP 0 5% 1/16W	
R012	1-216-864-11	METAL CHIP 0 5% 1/16W	
R013	1-216-864-11	METAL CHIP 0 5% 1/16W	
R014	1-216-864-11	METAL CHIP 0 5% 1/16W	
R015	1-216-864-11	METAL CHIP 0 5% 1/16W	
R016	1-216-864-11	METAL CHIP 0 5% 1/16W	
R017	1-414-760-21	FERRITE 0uH	
R018	1-414-760-21	FERRITE 0uH	
R020	1-414-760-21	FERRITE 0uH	
R021	1-414-760-21	FERRITE 0uH	
R023	1-216-864-11	METAL CHIP 0 5% 1/16W	
R030	1-414-760-21	FERRITE 0uH	
R033	1-216-864-11	METAL CHIP 0 5% 1/16W	
R034	1-216-864-11	METAL CHIP 0 5% 1/16W	
R035	1-216-864-11	METAL CHIP 0 5% 1/16W	
R036	1-216-864-11	METAL CHIP 0 5% 1/16W	
R037	1-216-864-11	METAL CHIP 0 5% 1/16W	
R038	1-414-760-21	FERRITE 0uH	
R039	1-216-864-11	METAL CHIP 0 5% 1/16W	

JC-19

Ref. No.	Part No.	Description			Remark
R040	1-414-760-21	FERRITE	0uH		
R041	1-414-760-21	FERRITE	0uH		
R042	1-414-760-21	FERRITE	0uH		
R043	1-216-864-11	METAL CHIP	0	5%	1/16W
R044	1-414-760-21	FERRITE	0uH		
R045	1-216-864-11	METAL CHIP	0	5%	1/16W
R046	1-216-864-11	METAL CHIP	0	5%	1/16W
R047	1-216-864-11	METAL CHIP	0	5%	1/16W
R048	1-414-760-21	FERRITE	0uH		
R049	1-414-760-21	FERRITE	0uH		
R050	1-414-760-21	FERRITE	0uH		
R052	1-414-760-21	FERRITE	0uH		
R053	1-414-760-21	FERRITE	0uH		
R054	1-414-760-21	FERRITE	0uH		
R055	1-414-760-21	FERRITE	0uH		
R056	1-414-760-21	FERRITE	0uH		
R057	1-414-760-21	FERRITE	0uH		
R059	1-216-837-11	METAL CHIP	22K	5%	1/16W
R060	1-216-818-11	METAL CHIP	560	5%	1/16W
R061	1-216-817-11	METAL CHIP	470	5%	1/16W
R062	1-216-821-11	METAL CHIP	1K	5%	1/16W
R063	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R064	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R065	1-216-837-11	METAL CHIP	22K	5%	1/16W
R067	1-216-818-11	METAL CHIP	560	5%	1/16W
R068	1-216-817-11	METAL CHIP	470	5%	1/16W
R069	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R070	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R071	1-216-821-11	METAL CHIP	1K	5%	1/16W
R113	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R115	1-216-837-11	METAL CHIP	22K	5%	1/16W
R116	1-216-837-11	METAL CHIP	22K	5%	1/16W
R117	1-216-837-11	METAL CHIP	22K	5%	1/16W
R118	1-216-821-11	METAL CHIP	1K	5%	1/16W
R119	1-216-821-11	METAL CHIP	1K	5%	1/16W
R120	1-216-821-11	METAL CHIP	1K	5%	1/16W
R121	1-216-864-11	METAL CHIP	0	5%	1/16W
R122	1-216-864-11	METAL CHIP	0	5%	1/16W
R123	1-216-864-11	METAL CHIP	0	5%	1/16W
R124	1-216-833-91	RES, CHIP	10K	5%	1/16W
R125	1-216-833-91	RES, CHIP	10K	5%	1/16W
R126	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R127	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R128	1-216-809-11	METAL CHIP	100	5%	1/16W
R129	1-216-809-11	METAL CHIP	100	5%	1/16W
R130	1-216-809-11	METAL CHIP	100	5%	1/16W
R131	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R133	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R134	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R135	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R136	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R137	1-216-833-91	RES, CHIP	10K	5%	1/16W
R138	1-216-833-91	RES, CHIP	10K	5%	1/16W
R139	1-216-821-11	METAL CHIP	1K	5%	1/16W
R140	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R141	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R142	1-216-821-11	METAL CHIP	1K	5%	1/16W
R143	1-216-835-11	METAL CHIP	15K	5%	1/16W
R145	1-216-821-11	METAL CHIP	1K	5%	1/16W
R146	1-216-821-11	METAL CHIP	1K	5%	1/16W
R147	1-216-821-11	METAL CHIP	1K	5%	1/16W
R148	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R149	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R150	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R151	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R152	1-216-835-11	METAL CHIP	15K	5%	1/16W
R154	1-216-809-11	METAL CHIP	100	5%	1/16W
R155	1-216-809-11	METAL CHIP	100	5%	1/16W
R156	1-216-809-11	METAL CHIP	100	5%	1/16W
R157	1-216-864-11	METAL CHIP	0	5%	1/16W
R159	1-216-805-11	METAL CHIP	47	5%	1/16W
R160	1-216-821-11	METAL CHIP	1K	5%	1/16W
R161	1-216-821-11	METAL CHIP	1K	5%	1/16W
R162	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R163	1-216-864-11	METAL CHIP	0	5%	1/16W
R164	1-216-816-11	METAL CHIP	390	5%	1/16W
R165	1-216-864-11	METAL CHIP	0	5%	1/16W
R166	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R167	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R168	1-216-835-11	METAL CHIP	15K	5%	1/16W
R169	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R170	1-216-864-11	METAL CHIP	0	5%	1/16W
R173	1-216-821-11	METAL CHIP	1K	5%	1/16W
R174	1-216-821-11	METAL CHIP	1K	5%	1/16W
R175	1-216-813-11	METAL CHIP	220	5%	1/16W
R176	1-216-821-11	METAL CHIP	1K	5%	1/16W
R177	1-216-821-11	METAL CHIP	1K	5%	1/16W
R178	1-216-817-11	METAL CHIP	470	5%	1/16W
R182	1-216-821-11	METAL CHIP	1K	5%	1/16W
R183	1-216-821-11	METAL CHIP	1K	5%	1/16W
R184	1-216-817-11	METAL CHIP	470	5%	1/16W
R185	1-216-821-11	METAL CHIP	1K	5%	1/16W
R186	1-216-821-11	METAL CHIP	1K	5%	1/16W
R187	1-216-817-11	METAL CHIP	470	5%	1/16W
R192	1-216-821-11	METAL CHIP	1K	5%	1/16W
R199	1-216-821-11	METAL CHIP	1K	5%	1/16W
R201	1-216-821-11	METAL CHIP	1K	5%	1/16W
R203	1-216-864-11	METAL CHIP	0	5%	1/16W
R204	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R205	1-216-864-11	METAL CHIP	0	5%	1/16W
R206	1-216-864-11	METAL CHIP	0	5%	1/16W
R207	1-216-864-11	METAL CHIP	0	5%	1/16W
R208	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R209	1-216-864-11	METAL CHIP	0	5%	1/16W
R210	1-216-864-11	METAL CHIP	0	5%	1/16W
R211	1-216-833-91	RES, CHIP	10K	5%	1/16W
R212	1-216-864-11	METAL CHIP	0	5%	1/16W
R213	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R214	1-216-833-91	RES, CHIP	10K	5%	1/16W
R215	1-216-840-11	METAL CHIP	39K	5%	1/16W
R216	1-216-864-11	METAL CHIP	0	5%	1/16W
R217	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R218	1-216-864-11	METAL CHIP	0	5%	1/16W
R219	1-216-864-11	METAL CHIP	0	5%	1/16W
R246	1-216-864-11	METAL CHIP	0	5%	1/16W
R247	1-216-821-11	METAL CHIP	1K	5%	1/16W
R248	1-216-817-11	METAL CHIP	470	5%	1/16W
R249	1-216-817-11	METAL CHIP	470	5%	1/16W
R250	1-216-821-11	METAL CHIP	1K	5%	1/16W
R256	1-216-833-91	RES, CHIP	10K	5%	1/16W

Ref. No.	Part No.	Description			Remark
R259	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R260	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R261	1-216-814-11	METAL CHIP	270	5%	1/16W
R262	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R264	1-216-833-91	RES, CHIP	10K	5%	1/16W
R266	1-216-833-91	RES, CHIP	10K	5%	1/16W
R268	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R269	1-216-814-11	METAL CHIP	270	5%	1/16W
R270	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R271	1-216-864-11	METAL CHIP	0	5%	1/16W
R272	1-216-855-11	METAL CHIP	680K	5%	1/16W
R273	1-216-839-11	METAL CHIP	33K	5%	1/16W
R274	1-216-864-11	METAL CHIP	0	5%	1/16W
R276	1-216-833-91	RES, CHIP	10K	5%	1/16W
R277	1-216-839-11	METAL CHIP	33K	5%	1/16W
R278	1-216-864-11	METAL CHIP	0	5%	1/16W
R279	1-216-839-11	METAL CHIP	33K	5%	1/16W
R280	1-216-833-91	RES, CHIP	10K	5%	1/16W
R281	1-216-821-11	METAL CHIP	1K	5%	1/16W
R282	1-216-839-11	METAL CHIP	33K	5%	1/16W
R285	1-216-864-11	METAL CHIP	0	5%	1/16W
R286	1-216-833-91	RES, CHIP	10K	5%	1/16W
R288	1-216-833-91	RES, CHIP	10K	5%	1/16W
R292	1-216-833-91	RES, CHIP	10K	5%	1/16W
R295	1-216-864-11	METAL CHIP	0	5%	1/16W
R297	1-216-864-11	METAL CHIP	0	5%	1/16W
R298	1-216-864-11	METAL CHIP	0	5%	1/16W
R299	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R300	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R301	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R302	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R303	1-216-821-11	METAL CHIP	1K	5%	1/16W
R304	1-216-815-11	METAL CHIP	330	5%	1/16W
R313	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R314	1-216-815-11	METAL CHIP	330	5%	1/16W
R315	1-216-815-11	METAL CHIP	330	5%	1/16W
R318	1-216-295-91	SHORT	0		
R319	1-218-864-11	METAL CHIP	5.1K	0.5%	1/16W (DSR-20MD)
R319	1-218-865-11	METAL CHIP	5.6K	0.5%	1/16W (DSR-20MDP)
R320	1-218-831-11	METAL CHIP	220	0.5%	1/16W
R321	1-218-851-11	METAL CHIP	1.5K	0.5%	1/16W
R322	1-218-831-11	METAL CHIP	220	0.5%	1/16W
R339	1-216-864-11	METAL CHIP	0	5%	1/16W
R340	1-216-841-11	METAL CHIP	47K	5%	1/16W
R341	1-216-841-11	METAL CHIP	47K	5%	1/16W
R342	1-216-864-11	METAL CHIP	0	5%	1/16W
R343	1-216-840-11	METAL CHIP	39K	5%	1/16W
R344	1-216-821-11	METAL CHIP	1K	5%	1/16W
R345	1-216-821-11	METAL CHIP	1K	5%	1/16W
R346	1-216-833-91	RES, CHIP	10K	5%	1/16W
R347	1-218-871-11	METAL CHIP	10K	0.5%	1/16W
R401	1-216-821-11	METAL CHIP	1K	5%	1/16W
R422	1-216-805-11	METAL CHIP	47	5%	1/16W
R423	1-216-805-11	METAL CHIP	47	5%	1/16W
R424	1-216-805-11	METAL CHIP	47	5%	1/16W
R425	1-216-833-91	RES, CHIP	10K	5%	1/16W
R426	1-216-821-11	METAL CHIP	1K	5%	1/16W
R427	1-216-833-91	RES, CHIP	10K	5%	1/16W
R428	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R429	1-216-845-11	METAL CHIP	100K	5%	1/16W
R430	1-216-805-11	METAL CHIP	47	5%	1/16W
R431	1-216-817-11	METAL CHIP	470	5%	1/16W
R432	1-216-845-11	METAL CHIP	100K	5%	1/16W
R433	1-216-845-11	METAL CHIP	100K	5%	1/16W
R434	1-216-805-11	METAL CHIP	47	5%	1/16W
R435	1-216-845-11	METAL CHIP	100K	5%	1/16W
R437	1-216-864-11	METAL CHIP	0	5%	1/16W
R438	1-216-864-11	METAL CHIP	0	5%	1/16W
R439	1-216-864-11	METAL CHIP	0	5%	1/16W
R440	1-216-833-91	RES, CHIP	10K	5%	1/16W
R441	1-216-833-91	RES, CHIP	10K	5%	1/16W
R442	1-216-815-11	METAL CHIP	330	5%	1/16W
R443	1-216-805-11	METAL CHIP	47	5%	1/16W
R444	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R445	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R446	1-216-845-11	METAL CHIP	100K	5%	1/16W
R447	1-216-845-11	METAL CHIP	100K	5%	1/16W
R448	1-216-845-11	METAL CHIP	100K	5%	1/16W
R449	1-216-821-11	METAL CHIP	1K	5%	1/16W
R450	1-216-857-11	METAL CHIP	1M	5%	1/16W
R451	1-216-845-11	METAL CHIP	100K	5%	1/16W
R452	1-216-845-11	METAL CHIP	100K	5%	1/16W
R453	1-216-845-11	METAL CHIP	100K	5%	1/16W
R454	1-216-845-11	METAL CHIP	100K	5%	1/16W
R455	1-216-845-11	METAL CHIP	100K	5%	1/16W
R456	1-216-845-11	METAL CHIP	100K	5%	1/16W
R457	1-216-845-11	METAL CHIP	100K	5%	1/16W
R458	1-216-845-11	METAL CHIP	100K	5%	1/16W
R459	1-216-845-11	METAL CHIP	100K	5%	1/16W
R460	1-216-845-11	METAL CHIP	100K	5%	1/16W
R461	1-216-864-11	METAL CHIP	0	5%	1/16W
R462	1-216-864-11	METAL CHIP	0	5%	1/16W
R463	1-216-864-11	METAL CHIP	0	5%	1/16W
R464	1-216-864-11	METAL CHIP	0	5%	1/16W
R465	1-216-864-11	METAL CHIP	0	5%	1/16W
R466	1-216-864-11	METAL CHIP	0	5%	1/16W
R467	1-216-864-11	METAL CHIP	0	5%	1/16W
R468	1-216-864-11	METAL CHIP	0	5%	1/16W
R469	1-216-821-11	METAL CHIP	1K	5%	1/16W
R470	1-216-821-11	METAL CHIP	1K	5%	1/16W
R471	1-216-821-11	METAL CHIP	1K	5%	1/16W
R472	1-216-821-11	METAL CHIP	1K	5%	1/16W
R502	1-216-809-11	METAL CHIP	100	5%	1/16W
R503	1-216-809-11	METAL CHIP	100	5%	1/16W
R504	1-216-864-11	METAL CHIP	0	5%	1/16W
R505	1-216-809-11	METAL CHIP	100	5%	1/16W
R506	1-216-864-11	METAL CHIP	0	5%	1/16W
R507	1-216-809-11	METAL CHIP	100	5%	1/16W
R508	1-216-864-11	METAL CHIP	0	5%	1/16W
R509	1-216-833-91	RES, CHIP	10K	5%	1/16W
R510	1-216-864-11	METAL CHIP	0	5%	1/16W
R511	1-216-833-91	RES, CHIP	10K	5%	1/16W
R512	1-216-809-11	METAL CHIP	100	5%	1/16W
R513	1-216-809-11	METAL CHIP	100	5%	1/16W
R514	1-216-809-11	METAL CHIP	100	5%	1/16W
R515	1-216-809-11	METAL CHIP	100	5%	1/16W
R517	1-216-809-11	METAL CHIP	100	5%	1/16W
R518	1-216-809-11	METAL CHIP	100	5%	1/16W

JC-19

Ref. No.	Part No.	Description			Remark
R524	1-216-841-11	METAL CHIP	47K	5%	1/16W
R526	1-216-841-11	METAL CHIP	47K	5%	1/16W
R529	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R530	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R531	1-216-809-11	METAL CHIP	100	5%	1/16W
R532	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R533	1-216-809-11	METAL CHIP	100	5%	1/16W
R534	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R535	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R536	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R537	1-216-841-11	METAL CHIP	47K	5%	1/16W
R538	1-216-841-11	METAL CHIP	47K	5%	1/16W
R539	1-216-841-11	METAL CHIP	47K	5%	1/16W
R540	1-216-841-11	METAL CHIP	47K	5%	1/16W
R541	1-216-841-11	METAL CHIP	47K	5%	1/16W
R542	1-216-841-11	METAL CHIP	47K	5%	1/16W
R543	1-216-821-11	METAL CHIP	1K	5%	1/16W
R544	1-216-821-11	METAL CHIP	1K	5%	1/16W
R545	1-216-821-11	METAL CHIP	1K	5%	1/16W
R546	1-216-791-11	METAL CHIP	3.3	5%	1/16W
R547	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R548	1-216-821-11	METAL CHIP	1K	5%	1/16W
R549	1-216-821-11	METAL CHIP	1K	5%	1/16W
R550	1-216-841-11	METAL CHIP	47K	5%	1/16W
R551	1-216-821-11	METAL CHIP	1K	5%	1/16W
R553	1-216-797-11	METAL CHIP	10	5%	1/16W
R554	1-216-797-11	METAL CHIP	10	5%	1/16W
R555	1-216-833-91	RES, CHIP	10K	5%	1/16W
R556	1-216-833-91	RES, CHIP	10K	5%	1/16W
R557	1-216-833-91	RES, CHIP	10K	5%	1/16W
R558	1-216-821-11	METAL CHIP	1K	5%	1/16W
R559	1-216-821-11	METAL CHIP	1K	5%	1/16W
R560	1-216-821-11	METAL CHIP	1K	5%	1/16W
R561	1-216-821-11	METAL CHIP	1K	5%	1/16W
R562	1-216-821-11	METAL CHIP	1K	5%	1/16W
R563	1-216-821-11	METAL CHIP	1K	5%	1/16W
R564	1-219-570-11	RES, CHIP	10M	5%	1/16W
R565	1-216-864-11	METAL CHIP	0	5%	1/16W
R566	1-216-821-11	METAL CHIP	1K	5%	1/16W
R567	1-216-821-11	METAL CHIP	1K	5%	1/16W
R568	1-216-821-11	METAL CHIP	1K	5%	1/16W
R569	1-216-821-11	METAL CHIP	1K	5%	1/16W
R570	1-216-841-11	METAL CHIP	47K	5%	1/16W
R571	1-216-841-11	METAL CHIP	47K	5%	1/16W
R572	1-216-845-11	METAL CHIP	100K	5%	1/16W
R573	1-216-821-11	METAL CHIP	1K	5%	1/16W
R574	1-216-797-11	METAL CHIP	10	5%	1/16W
R575	1-216-821-11	METAL CHIP	1K	5%	1/16W
R576	1-216-797-11	METAL CHIP	10	5%	1/16W
R577	1-216-797-11	METAL CHIP	10	5%	1/16W
R578	1-216-821-11	METAL CHIP	1K	5%	1/16W
R579	1-216-841-11	METAL CHIP	47K	5%	1/16W
R580	1-216-833-91	RES, CHIP	10K	5%	1/16W
R581	1-216-841-11	METAL CHIP	47K	5%	1/16W
R582	1-216-841-11	METAL CHIP	47K	5%	1/16W
R583	1-216-841-11	METAL CHIP	47K	5%	1/16W
R584	1-216-841-11	METAL CHIP	47K	5%	1/16W
R585	1-216-841-11	METAL CHIP	47K	5%	1/16W
R586	1-216-837-11	METAL CHIP	22K	5%	1/16W
R587	1-216-837-11	METAL CHIP	22K	5%	1/16W

Ref. No.	Part No.	Description			Remark
R701	1-216-833-91	RES, CHIP	10K	5%	1/16W
R702	1-216-821-11	METAL CHIP	1K	5%	1/16W
R703	1-216-857-11	METAL CHIP	1M	5%	1/16W
R704	1-216-833-91	RES, CHIP	10K	5%	1/16W
R705	1-216-833-91	RES, CHIP	10K	5%	1/16W
R706	1-216-821-11	METAL CHIP	1K	5%	1/16W
R707	1-216-845-11	METAL CHIP	100K	5%	1/16W
R708	1-216-864-11	METAL CHIP	0	5%	1/16W
R709	1-216-845-11	METAL CHIP	100K	5%	1/16W
R710	1-216-845-11	METAL CHIP	100K	5%	1/16W
R711	1-216-833-91	RES, CHIP	10K	5%	1/16W
R712	1-216-833-91	RES, CHIP	10K	5%	1/16W
R713	1-216-845-11	METAL CHIP	100K	5%	1/16W
R714	1-216-833-91	RES, CHIP	10K	5%	1/16W
R715	1-216-845-11	METAL CHIP	100K	5%	1/16W
R717	1-218-873-11	METAL CHIP	12K	0.5%	1/16W
R718	1-218-873-11	METAL CHIP	12K	0.5%	1/16W
R719	1-216-864-11	METAL CHIP	0	5%	1/16W
R720	1-218-871-11	METAL CHIP	10K	0.5%	1/16W
R721	1-218-871-11	METAL CHIP	10K	0.5%	1/16W
R722	1-216-806-11	RES, CHIP	56	5%	1/16W
R723	1-216-806-11	RES, CHIP	56	5%	1/16W
R724	1-216-806-11	RES, CHIP	56	5%	1/16W
R725	1-216-806-11	RES, CHIP	56	5%	1/16W
R726	1-216-845-11	METAL CHIP	100K	5%	1/16W
R727	1-216-864-11	METAL CHIP	0	5%	1/16W
R801	1-216-833-91	RES, CHIP	10K	5%	1/16W
R802	1-216-845-11	METAL CHIP	100K	5%	1/16W
R803	1-216-809-11	METAL CHIP	100	5%	1/16W
R813	1-216-837-11	METAL CHIP	22K	5%	1/16W
R814	1-216-142-00	RES, CHIP	4.7	5%	1/8W
R818	1-216-845-11	METAL CHIP	100K	5%	1/16W
R819	1-216-837-11	METAL CHIP	22K	5%	1/16W
R821	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R822	1-216-845-11	METAL CHIP	100K	5%	1/16W
R823	1-216-845-11	METAL CHIP	100K	5%	1/16W
R824	1-216-845-11	METAL CHIP	100K	5%	1/16W
R826	1-216-864-11	METAL CHIP	0	5%	1/16W
R829	1-216-864-11	METAL CHIP	0	5%	1/16W
R830	1-216-833-91	RES, CHIP	10K	5%	1/16W
R831	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R832	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R833	1-216-833-91	RES, CHIP	10K	5%	1/16W
R834	1-216-833-91	RES, CHIP	10K	5%	1/16W
R835	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R836	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R837	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R838	1-216-809-11	METAL CHIP	100	5%	1/16W
R839	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R840	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R841	1-216-809-11	METAL CHIP	100	5%	1/16W
R842	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R843	1-216-809-11	METAL CHIP	100	5%	1/16W
R844	1-216-833-91	RES, CHIP	10K	5%	1/16W
R845	1-216-809-11	METAL CHIP	100	5%	1/16W
R847	1-216-833-91	RES, CHIP	10K	5%	1/16W
R850	1-218-870-11	METAL CHIP	9.1K	0.5%	1/16W
R852	1-216-809-11	METAL CHIP	100	5%	1/16W
R853	1-216-833-91	RES, CHIP	10K	5%	1/16W
R854	1-216-833-91	RES, CHIP	10K	5%	1/16W

Ref. No.	Part No.	Description			Remark
R855	1-218-870-11	METAL CHIP	9.1K	0.5%	1/16W
R856	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R857	1-216-809-11	METAL CHIP	100	5%	1/16W
R858	1-218-707-11	RES, CHIP	4.3K	5%	1/16W
R859	1-216-809-11	METAL CHIP	100	5%	1/16W
R860	1-218-707-11	RES, CHIP	4.3K	5%	1/16W
R861	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R863	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R866	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R867	1-216-809-11	METAL CHIP	100	5%	1/16W
R868	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R869	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R870	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R871	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R872	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R873	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R875	1-218-839-11	METAL CHIP	470	0.5%	1/16W
R876	1-218-839-11	METAL CHIP	470	0.5%	1/16W
R877	1-218-839-11	METAL CHIP	470	0.5%	1/16W
R878	1-218-839-11	METAL CHIP	470	0.5%	1/16W
R879	1-216-864-11	METAL CHIP	0	5%	1/16W
R880	1-216-815-11	METAL CHIP	330	5%	1/16W
R881	1-216-815-11	METAL CHIP	330	5%	1/16W
R885	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R886	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R887	1-216-833-91	RES, CHIP	10K	5%	1/16W
R888	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R889	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R890	1-216-849-11	METAL CHIP	220K	5%	1/16W
R891	1-208-813-11	METAL CHIP	20K	0.5%	1/10W
R893	1-216-833-91	RES, CHIP	10K	5%	1/16W
R894	1-216-809-11	METAL CHIP	100	5%	1/16W
R895	1-216-833-91	RES, CHIP	10K	5%	1/16W
R896	1-216-809-11	METAL CHIP	100	5%	1/16W
R897	1-208-813-11	METAL CHIP	20K	0.5%	1/10W
R899	1-216-864-11	METAL CHIP	0	5%	1/16W
R903	1-216-864-11	METAL CHIP	0	5%	1/16W
R904	1-216-838-11	METAL CHIP	27K	5%	1/16W
R905	1-216-821-11	METAL CHIP	1K	5%	1/16W
R906	1-218-883-11	METAL CHIP	33K	0.5%	1/16W
R907	1-216-821-11	METAL CHIP	1K	5%	1/16W
R908	1-216-864-11	METAL CHIP	0	5%	1/16W
R909	1-216-864-11	METAL CHIP	0	5%	1/16W
R913	1-216-821-11	METAL CHIP	1K	5%	1/16W
R918	1-216-821-11	METAL CHIP	1K	5%	1/16W
R919	1-216-864-11	METAL CHIP	0	5%	1/16W
R920	1-218-871-11	METAL CHIP	10K	0.5%	1/16W
R921	1-218-875-11	METAL CHIP	15K	0.5%	1/16W
R923	1-216-178-00	RES, CHIP	150	5%	1/8W
R924	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R926	1-216-857-11	METAL CHIP	1M	5%	1/16W
R936	1-216-845-11	METAL CHIP	100K	5%	1/16W
R937	1-216-845-11	METAL CHIP	100K	5%	1/16W
R938	1-216-847-11	METAL CHIP	150K	5%	1/16W
R939	1-216-833-91	RES, CHIP	10K	5%	1/16W
R941	1-216-864-11	METAL CHIP	0	5%	1/16W
R943	1-216-864-11	METAL CHIP	0	5%	1/16W
R944	1-216-833-91	RES, CHIP	10K	5%	1/16W
R950	1-216-821-11	METAL CHIP	1K	5%	1/16W
R951	1-216-821-11	METAL CHIP	1K	5%	1/16W
R952	1-216-821-11	METAL CHIP	1K	5%	1/16W
R953	1-216-821-11	METAL CHIP	1K	5%	1/16W
R954	1-216-821-11	METAL CHIP	1K	5%	1/16W
R955	1-216-821-11	METAL CHIP	1K	5%	1/16W
R956	1-216-821-11	METAL CHIP	1K	5%	1/16W
R957	1-216-842-11	METAL CHIP	56K	5%	1/16W
R958	1-216-845-11	METAL CHIP	100K	5%	1/16W
R959	1-216-833-91	RES, CHIP	10K	5%	1/16W
R960	1-216-841-11	METAL CHIP	47K	5%	1/16W
R962	1-216-821-11	METAL CHIP	1K	5%	1/16W
R964	1-216-838-11	METAL CHIP	27K	5%	1/16W
R965	1-216-833-91	RES, CHIP	10K	5%	1/16W
R966	1-216-833-91	RES, CHIP	10K	5%	1/16W
R967	1-216-833-91	RES, CHIP	10K	5%	1/16W
R968	1-216-841-11	METAL CHIP	47K	5%	1/16W
R969	1-216-841-11	METAL CHIP	47K	5%	1/16W
R970	1-216-833-91	RES, CHIP	10K	5%	1/16W
R971	1-216-813-11	METAL CHIP	220	5%	1/16W
R972	1-216-841-11	METAL CHIP	47K	5%	1/16W
R973	1-216-864-11	METAL CHIP	0	5%	1/16W
R974	1-216-838-11	METAL CHIP	27K	5%	1/16W
R975	1-216-841-11	METAL CHIP	47K	5%	1/16W
R976	1-216-845-11	METAL CHIP	100K	5%	1/16W
R978	1-216-813-11	METAL CHIP	220	5%	1/16W
R980	1-216-841-11	METAL CHIP	47K	5%	1/16W
R981	1-216-821-11	METAL CHIP	1K	5%	1/16W
R982	1-216-833-91	RES, CHIP	10K	5%	1/16W
R983	1-216-821-11	METAL CHIP	1K	5%	1/16W
R984	1-216-833-91	RES, CHIP	10K	5%	1/16W
R986	1-216-864-11	METAL CHIP	0	5%	1/16W
R987	1-216-864-11	METAL CHIP	0	5%	1/16W
R988	1-216-864-11	METAL CHIP	0	5%	1/16W
R989	1-216-864-11	METAL CHIP	0	5%	1/16W
R990	1-216-813-11	METAL CHIP	220	5%	1/16W
R991	1-216-813-11	METAL CHIP	220	5%	1/16W
R992	1-216-864-11	METAL CHIP	0	5%	1/16W
RR001	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-20MD)
RR002	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-20MDP)

< VARIABLE RESISTOR >

RV001	1-238-855-11	RES, ADJ, CERMET 4.7K (A/D CONV. REF REG1)
RV002	1-238-855-11	RES, ADJ, CERMET 4.7K (A/D CONV. REF REG2)
RV010	1-238-854-11	RES, ADJ, CERMET 2.2K (CR CLAMP REF REG)
RV011	1-238-853-11	RES, ADJ, CERMET 1K (Y CLAMP REF REG)
RV012	1-238-854-11	RES, ADJ, CERMET 2.2K (CB CLAMP REF REG)
RV201	1-238-855-11	RES, ADJ, CERMET 4.7K (AFC PICTURE FRAME)

< VIBRATOR >

X421	1-760-655-21	VIBRATOR, CRYSTAL (20MHz)
X422	1-767-449-11	VIBRATOR, CRYSTAL (27MHz)
X501	1-767-450-11	VIBRATOR, CERAMIC (20MHz)
X502	1-760-458-21	VIBRATOR, CRYSTAL (32.768kHz)
X701	1-767-399-11	VIBRATOR, CRYSTAL (24.576MHz)

Ref. No.	Part No.	Description			Remark
X702	1-760-497-21	VIBRATOR, LITHIUM NIOBATE (6MHz)			
X801	1-767-779-21	VIBRATOR, CRYSTAL (49.152MHz)			
		MD-63 BOARD (Ref No. 6,000 Series)			
		**********			
		< CAPACITOR >			
C101	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C102	1-163-031-11	CERAMIC CHIP	0.01uF		50V
		< CONNECTOR >			
CN101	1-770-646-11	CONNECTOR, FFC/FPC 16P			
		< DIODE >			
D101	8-719-989-52	DIODE GL4600S			
		< IC >			
IC101	8-719-820-44	IC PHOTO COUPLER TLP907-0 (SONY2)			
IC102	8-719-820-44	IC PHOTO COUPLER TLP907-0 (SONY2)			
IC103	8-759-510-71	IC BA10358F-E2			
IC105	8-719-821-03	IC ELEMENT, HALL THS117-TE85L			
		< JUMPER RESISTOR >			
JR101	1-216-296-91	SHORT	0		
JR102	1-216-296-91	SHORT	0		
JR103	1-216-296-91	SHORT	0		
JR104	1-216-296-91	SHORT	0		
JR105	1-216-296-91	SHORT	0		
		< TRANSISTOR >			
Q102	8-729-012-46	PHOTO TRANSISTOR PT4600FS			
		< RESISTOR >			
R101	1-216-031-00	METAL CHIP	180	5%	1/10W
R102	1-216-081-00	METAL CHIP	22K	5%	1/10W
R103	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R107	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R108	1-216-047-91	RES, CHIP	820	5%	1/10W
R109	1-216-081-00	METAL CHIP	22K	5%	1/10W
		< VARIABLE RESISTOR >			
RV101	1-238-858-11	RES, ADJ, CERMET 47K			
RV102	1-238-862-11	RES, ADJ, CERMET 1M			
		< SWITCH >			
S101	1-572-719-11	SWITCH, PUSH (1 KEY)			
		MD-64 BOARD (Ref No. 7,000 Series)			
		**********			
		< CAPACITOR >			
C001	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C002	1-163-031-11	CERAMIC CHIP	0.01uF		50V
		< CONNECTOR >			
CN002	1-770-692-11	CONNECTOR, FFC/FPC 9P			
		< IC >			
IC003	8-719-820-44	IC PHOTO COUPLER TLP907-0 (SONY2)			
IC004	8-719-820-44	IC PHOTO COUPLER TLP907-0 (SONY2)			
IC005	8-759-510-71	IC BA10358F-E2			
IC006	8-719-821-03	IC ELEMENT, HALL THS117-TE85L			
		< JUMPER RESISTOR >			
JR001	1-216-296-91	SHORT	0		
JR002	1-216-296-91	SHORT	0		
		< TRANSISTOR >			
Q001	8-729-012-46	PHOTO TRANSISTOR PT4600FS			
		< RESISTOR >			
R002	1-216-031-00	METAL CHIP	180	5%	1/10W
R003	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R004	1-216-081-00	METAL CHIP	22K	5%	1/10W
R005	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R007	1-216-081-00	METAL CHIP	22K	5%	1/10W
R008	1-216-047-91	RES, CHIP	820	5%	1/10W
		< VARIABLE RESISTOR >			
RV001	1-238-858-11	RES, ADJ, CERMET 47K			
RV002	1-238-862-11	RES, ADJ, CERMET 1M			
		< SWITCH >			
S002	1-762-558-11	SWITCH, PUSH (C DOWN)			
		MD-65 BOARD (Ref No. 5,000 Series)			
		**********			
		< CONNECTOR >			
CN201	1-766-830-21	CONNECTOR, FFC/FPC (ZIF) 11P			
CN202	1-774-771-11	CONNECTOR, FFC/FPC 14P			
CN203	1-564-001-11	PIN, CONNECTOR 2P			
CN204	1-750-620-11	CONNECTOR (MM8 MD)			
		< JUMPER RESISTOR >			
JR201	1-216-296-91	SHORT	0		
⚠	1-468-441-11	POWER BLOCK (U-1) (DSR-20MD)			
⚠	1-468-442-11	POWER BLOCK (U-1) (DSR-20MDP)			
		**********			
		(Ref No. 10,000 Series)			
		< CAPACITOR >			
⚠C1	1-104-705-11	FILM	0.1uF	20%	250V (DSR-20MD)
⚠C1	1-104-706-11	FILM	0.22uF	20%	250V (DSR-20MDP)
⚠C2	1-104-705-11	FILM	0.1uF	20%	250V
⚠C3	1-115-383-11	CERAMIC	0.001uF	10%	125V
⚠C4	1-115-383-11	CERAMIC	0.001uF	10%	125V

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description			Remark
⚠C5	1-115-383-11	CERAMIC	0.001uF	10%	125V
⚠C6	1-104-705-11	FILM	0.1uF	20%	250V
C7	1-115-383-11	CERAMIC	0.001uF	10%	125V
C8	1-115-383-11	CERAMIC	0.001uF	10%	125V
⚠C9	9-880-364-01	ELECT	470uF		200V (DSR-20MD)
⚠C9	1-117-188-11	ELECT	150uF	20%	400V (DSR-20MDP)
C10	9-880-365-01	FILM	0.01uF		630V
C11	9-880-366-01	CERAMIC	680PF (DSR-20MD)		
C11	9-880-424-01	CERAMIC	330PF (DSR-20MDP)		
C12	9-880-366-01	CERAMIC	680PF (DSR-20MD)		
C12	9-880-424-01	CERAMIC	330PF (DSR-20MDP)		
C13	1-107-929-11	ELECT	10uF	20%	100V
C14	1-107-929-11	ELECT	10uF	20%	100V
C15	1-126-387-11	ELECT	2.2uF	20%	100V
C16	9-880-367-01	FILM	0.1uF		
C17	9-880-368-01	FILM	470PF		
C18	9-880-369-01	FILM	0.15uF		
C19	9-880-370-01	FILM	0.033uF		
C20	1-107-929-11	ELECT	10uF	20%	100V
C21	9-880-371-01	CERAMIC	0.001uF		
C22	9-880-371-01	CERAMIC	0.001uF		
C25	9-880-371-01	CERAMIC	0.001uF (DSR-20MD)		
C25	9-880-426-01	CERAMIC	0.001uF (DSR-20MDP)		
C26	9-880-371-01	CERAMIC	0.001uF (DSR-20MD)		
C26	9-880-426-01	CERAMIC	0.001uF (DSR-20MDP)		
C27	1-111-066-11	ELECT	820uF	20%	25V
C28	1-111-066-11	ELECT	820uF	20%	25V
C29	9-880-367-01	FILM	0.1uF		
C31	9-880-367-01	FILM	0.1uF		
C32	9-880-367-01	FILM	0.1uF		
		< CONNECTOR >			
* CN1	1-580-230-31	PIN, CONNECTOR (FOR BOARD) 2P			
* CN3	9-880-386-01	BOARD IN HARNESS 4P			
		< FUSE >			
⚠F1	9-880-385-01	FUSE (3.15A/125V) (DSR-20MD)			
⚠F1	9-882-875-01	FUSE (T1.6AL/250V) (DSR-20MDP)			
⚠F2	9-880-385-01	FUSE (3.15A/125V) (DSR-20MD)			
⚠F2	9-882-875-01	FUSE (T1.6AL/250V) (DSR-20MDP)			
		< COIL >			
⚠L1	9-880-379-01	INDUCTOR 6mH (DSR-20MD)			
⚠L1	9-880-431-01	INDUCTOR 15mH (DSR-20MDP)			
⚠L2	9-880-380-01	INDUCTOR 5.6mH (DSR-20MD)			
⚠L2	9-880-432-01	INDUCTOR 22mH (DSR-20MDP)			
L3	9-880-381-01	INDUCTOR			
L4	9-880-382-01	INDUCTOR			
L5	9-880-382-01	INDUCTOR			
L6	9-880-383-01	INDUCTOR			
		< DIODE >			
⚠D1	8-719-500-58	DIODE	D3SBA60		
D4	8-719-979-63	DIODE	UF4005 (DSR-20MD)		
D4	8-719-053-19	DIODE	UF4007G23 (DSR-20MDP)		
D5	8-719-110-72	DIODE	RD30ESB2		
D6	8-719-110-72	DIODE	RD30ESB2		
D8	8-719-053-20	DIODE	UF4003P		
D9	8-719-109-85	DIODE	RD5.1ESB2		
D10	8-719-510-37	DIODE	D5LC20U		
D11	8-719-109-97	DIODE	RD6.8ESB2		
D12	8-719-110-41	DIODE	RD15ESB2		
		< TRANSISTOR >			
Q1	8-729-037-96	TRANSISTOR 2SK2366 (DSR-20MD)			
Q1	9-880-423-01	TRANSISTOR 2SK2483 (DSR-20MDP)			
Q3	8-729-281-53	TRANSISTOR 2SC1815-GR			
		< RESISTOR >			
⚠R1	9-880-373-01	METAL OXIDE	220K	1W (DSR-20MD)	
⚠R1	9-880-427-01	METAL OXIDE	330K	1W (DSR-20MDP)	
R2	9-880-374-01	METAL OXIDE	82K	2W (DSR-20MD)	
R2	9-880-428-01	METAL OXIDE	270K	2W (DSR-20MDP)	
R3	1-212-865-00	FUSEBLE	22	5%	1/4W F
R4	1-247-879-11	CARBON	100K	5%	1/4W
R5	1-215-884-11	METAL OXIDE	47	5%	2W
R6	1-215-880-11	METAL OXIDE	10	5%	2W
R7	9-880-375-01	METAL OXIDE	18K	2W (DSR-20MD)	
R7	9-880-650-01	METAL OXIDE	150K	2W (DSR-20MDP)	
R8	9-880-376-01	METAL OXIDE	0.22	5W (DSR-20MD)	
R8	9-880-429-01	METAL OXIDE	0.47	5W (DSR-20MDP)	
R9	1-216-377-11	METAL OXIDE	4.7	5%	2W
R10	1-215-462-00	METAL	5.1K	1%	1/4W
R11	1-249-411-11	CARBON	330	5%	1/4W (DSR-20MD)
R11	1-249-417-11	CARBON	1K	5%	1/4W (DSR-20MDP)
R12	1-215-383-00	METAL	27	1%	1/4W
R13	1-215-385-00	METAL	33	1%	1/4W
R14	1-249-430-11	CARBON	12K	5%	1/4W
R16	1-215-884-11	METAL OXIDE	47	5%	2W
R18	1-247-847-11	CARBON	4.7K	5%	1/4W
R19	1-247-847-11	CARBON	4.7K	5%	1/4W
R20	1-247-839-11	CARBON	2.2K	5%	1/4W
R21	1-249-417-11	CARBON	1K	5%	1/4W
R22	1-247-843-11	CARBON	3.3K	5%	1/4W
R23	1-249-399-11	CARBON	33	5%	1/4W
R24	1-215-425-00	METAL	1.5K	1%	1/4W
R25	1-215-425-00	METAL	1.5K	1%	1/4W
R26	1-215-433-00	METAL	3.3K	1%	1/4W
R27	1-249-417-11	CARBON	1K	5%	1/4W
R28	9-880-375-01	METAL OXIDE	18K	2W (DSR-20MD)	
R28	9-880-650-01	METAL OXIDE	150K	2W (DSR-20MD)	
R29	9-880-651-01	METAL OXIDE	680	2W	
		< VARIABLE RESISTOR >			
RV1	9-880-377-01	RES, VAAR, CARBON 3K			

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

POWER BLOCK (U-1)

Ref. No.	Part No.	Description	Remark
		< TRANSFORMER >	
⚠T1	9-885-000-10	TRANSFORMER, POWER (DSR-20MD)	
⚠T1	9-885-000-13	TRANSFORMER, POWER (DSR-20MDP)	
		< THERMISTOR >	
TH1	9-880-384-01	THERMISTOR 8	
		< IC >	
Z1	9-885-000-09	IC FA5316P	
⚠Z2	8-749-924-80	PHOTO COUPLER PS2561L1-1-V	
⚠Z3	8-749-924-80	PHOTO COUPLER PS2561L1-1-V	

POWER BLOCK (U-2)

Ref. No.	Part No.	Description		Remark
⚠	1-468-441-11	POWER BLOCK (U-2) (DSR-20MD)		
⚠	1-468-442-11	POWER BLOCK (U-2) (DSR-20MDP)		
		********** (Ref No. 20,000 Series)		
		< CAPACITOR >		
C1	1-115-781-11	ELECT 220uF	20%	25V
C2	1-115-781-11	ELECT 220uF	20%	25V
C3	9-880-399-01	FILM 0.047uF		
C4	9-880-399-01	FILM 0.047uF		
C5	9-880-400-01	ELECT 330uF		25V
C6	9-880-401-01	FILM 0.47uF		
C7	1-115-787-11	ELECT 820uF	20%	25V
C8	1-115-787-11	ELECT 820uF	20%	25V
C10	9-880-403-01	FILM 0.1uF		50V
C11	1-115-787-11	ELECT 820uF	20%	25V
C12	9-880-404-01	ELECT 470uF		25V
C13	9-880-405-01	CERAMIC 0.001uF		
C14	1-115-737-11	ELECT 0.001uF	20%	10V
C15	1-115-737-11	ELECT 0.001uF	20%	10V
C16	9-880-406-01	ELECT 680uF		10V
C17	9-880-402-01	FILM 0.1uF		50V
C18	1-124-942-11	ELECT 180uF	20%	10V
C19	9-880-399-01	FILM 0.047uF		
C20	9-880-399-01	FILM 0.047uF		
C21	9-880-399-01	FILM 0.047uF		
C22	9-880-402-01	FILM 0.1uF		50V
C23	9-880-399-01	FILM 0.047uF		
C24	1-115-730-11	ELECT 180uF	20%	10V
C25	9-880-404-01	ELECT 470uF		25V
C26	9-880-399-01	FILM 0.047uF		
C27	9-880-407-01	CERAMIC 0.0022uF		
C28	9-880-406-01	ELECT 680uF		10V
C29	9-880-406-01	ELECT 680uF		10V
C30	9-880-402-01	FILM 0.01uF		
C31	9-880-406-01	ELECT 680uF		10V
C32	1-115-785-11	ELECT 470uF		25V
C33	1-124-534-11	ELECT 680uF	20%	16V
C34	9-880-402-01	FILM 0.01uF		
C35	1-115-754-11	ELECT 120uF	20%	16V
C36	9-880-403-01	FILM 0.1uF		50V
C37	1-115-730-11	ELECT 180uF	20%	10V
C38	9-880-399-01	FILM 0.047uF		
C39	9-880-402-01	FILM 0.01uF		
C40	9-880-402-01	FILM 0.01uF		
C41	9-880-399-01	FILM 0.047uF		
C42	9-880-399-01	FILM 0.047uF		
C44	1-117-154-11	ELECT 33uF	20%	16V
C45	9-880-399-01	FILM 0.047uF		
C46	9-880-652-01	ELECT 100uF	20%	16V
C47	1-117-154-11	ELECT 33uF	20%	16V
C48	9-880-652-01	ELECT 100uF	20%	16V
C49	9-880-399-01	FILM 0.047uF		
C50	9-880-399-01	FILM 0.047uF		
C51	9-880-400-01	ELECT 330uF		25V
C54	9-880-406-01	ELECT 680uF		10V
C55	9-880-407-01	CERAMIC 0.0022uF		
C56	1-115-730-11	ELECT 180uF	20%	10V
C57	9-880-403-01	FILM 0.1uF		50V
C58	9-880-399-01	FILM 0.047uF		
C59	9-880-407-01	CERAMIC 0.0022uF		
C60	1-115-566-11	CERAMIC 4.7uF	10%	10V
C61	1-115-566-11	CERAMIC 4.7uF	10%	10V
C62	1-115-566-11	CERAMIC 4.7uF	10%	10V
C63	1-115-566-11	CERAMIC 4.7uF	10%	10V
C64	1-107-682-11	CERAMIC 1uF	10%	16V
C65	1-115-566-11	CERAMIC 4.7uF	10%	10V
C66	1-115-566-11	CERAMIC 4.7uF	10%	10V
C67	1-115-566-11	CERAMIC 4.7uF	10%	10V
C68	1-115-566-11	CERAMIC 4.7uF	10%	10V
C69	1-115-566-11	CERAMIC 4.7uF	10%	10V
C70	1-115-566-11	CERAMIC 4.7uF	10%	10V
C71	1-115-566-11	CERAMIC 4.7uF	10%	10V
C72	1-107-682-11	CERAMIC 1uF	10%	16V
C73	1-107-682-11	CERAMIC 1uF	10%	16V
		< CONNECTOR >		
* CN1	9-880-417-01	PIN, CONNECTOR 4P		
* CN2	1-506-485-11	PIN, CONNECTOR 6P		
* CN10	1-506-487-11	PIN, CONNECTOR 8P		
* CN11	1-506-488-11	PIN, CONNECTOR 9P		
* CN12	1-506-487-11	PIN, CONNECTOR 8P		
* CN13	1-506-481-11	CONNECTOR 2P		
		< FUSE >		
⚠F2	9-880-416-01	FUSE (T5A/250V)		
		< COIL >		
L1	9-880-408-01	INDUCTOR 0.5mH		
L2	9-880-409-01	INDUCTOR 1mH		
L3	9-880-410-01	INDUCTOR 150uH		
L4	1-459-407-00	COIL, FERRITE CHOKE 68uH		
L5	9-880-411-01	INDUCTOR 150uH		
L6	9-880-412-01	INDUCTOR 15uH		
L8	9-880-413-01	INDUCTOR 330uH		
L9	9-880-412-01	INDUCTOR 15uH		
L11	9-880-414-01	INDUCTOR 150uH		
L12	9-880-415-01	INDUCTOR		
L13	9-880-412-01	INDUCTOR 15uH		
L15	9-880-412-01	INDUCTOR 15uH		
L16	9-880-412-01	INDUCTOR 15uH		
L17	9-880-412-01	INDUCTOR 15uH		

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description				Remark
		< DIODE >				
D1	8-719-500-70	DIODE	D5S4M			
D2	8-719-109-89	DIODE	RD5.6ESB2			
D3	8-719-500-70	DIODE	D5S4M			
D4	8-719-043-76	DIODE	AK04V0			
D5	8-719-018-83	DIODE	D2S4M			
D6	8-719-018-83	DIODE	D2S4M			
D7	8-719-107-94	DIODE	1SS202-1			
D8	8-719-107-94	DIODE	1SS202-1			
		< TRANSISTOR >				
Q1	8-729-201-53	TRANSISTOR 2SA1015-GR				
Q2	8-729-201-53	TRANSISTOR 2SA1015-GR				
Q3	8-729-281-53	TRANSISTOR 2SC1815-GR				
Q4	8-729-203-76	TRANSISTOR 2SC3328-Y				
		< RESISTOR >				
R1	1-247-839-11	CARBON	2.2K	5%	1/4W	
R2	1-215-454-00	METAL	24K	1%	1/4W	
R3	1-215-427-00	METAL	1.8K	1%	1/4W	
R4	1-215-429-00	METAL	2.2K	1%	1/4W	
R5	1-216-431-11	METAL OXIDE	560	5%	1W	
R6	1-215-857-11	METAL OXIDE	10	5%	1W	
R7	1-215-443-00	METAL	8.2K	1%	1/4W	
R8	1-215-416-00	METAL	620	1%	1/4W	
R9	1-215-429-00	METAL	2.2K	1%	1/4W	
R10	1-216-448-11	METAL OXIDE	39	5%	2W	
R11	1-249-417-11	CARBON	1K	5%	1/4W	
R12	1-249-424-11	CARBON	3.9K	5%	1/4W	
R14	1-249-417-11	CARBON	1K	5%	1/4W	
R15	1-247-847-11	CARBON	4.7K	5%	1/4W	
R16	1-249-402-11	CARBON	56	5%	1/4W	
R17	1-249-402-11	CARBON	56	5%	1/4W	
R18	1-249-402-11	CARBON	56	5%	1/4W	
R19	1-247-847-11	CARBON	4.7K	5%	1/4W	
R21	1-249-417-11	CARBON	1K	5%	1/4W	
R22	1-215-857-11	METAL OXIDE	10	5%	1W	
R23	1-215-387-00	METAL	39	1%	1/4W	
R24	1-215-408-00	METAL	300	1%	1/4W	
R25	1-215-405-00	METAL	220	1%	1/4W	
R26	1-215-431-00	METAL	2.7K	1%	1/4W	
R27	1-215-449-00	METAL	15K	1%	1/4W	
R28	1-215-430-00	METAL	2.4K	1%	1/4W	
R29	1-247-841-11	CARBON	2.7K	5%	1/4W	
R30	1-249-417-11	CARBON	1K	5%	1/4W	
R31	1-215-447-00	METAL	12K	1%	1/4W	
R32	1-215-423-00	METAL	1.2K	1%	1/4W	
R33	1-215-423-00	METAL	1.2K	1%	1/4W	
R43	1-215-857-11	METAL OXIDE	10	5%	1W	
R45	1-215-443-00	METAL	8.2K	1%	1/4W	
R46	1-215-413-00	METAL	470	1%	1/4W	
R47	1-215-429-00	METAL	2.2K	1%	1/4W	
R48	1-247-839-11	CARBON	2.2K	5%	1/4W	
R49	1-249-402-11	CARBON	56	5%	1/4W	
R50	1-247-855-11	CARBON	10K	5%	1/4W	
R53	1-215-857-11	METAL OXIDE	10	5%	1W	
		< IC >				
Z1	8-759-164-80	IC LM2577-ADJ				
Z2	8-759-520-49	IC PQ30RV21				
Z3	8-759-293-98	IC LM2576T-ADJLB03				
Z4	9-880-397-01	IC uPC29L03J				
Z5	8-759-069-28	IC PQ05RF11				
Z6	9-880-398-01	IC TD62305AP				
Z7	8-759-490-61	IC LM2575T-ADJLB03				
Z8	8-759-490-61	IC LM2575T-ADJLB03				
Z10	8-759-089-53	IC uPC79M05HF				
Z11	8-759-098-24	IC PQ30RV11				

Ref. No.	Part No.	Description				Remark
*	A-7073-470-A	RE-32 BOARD, COMPLETE				
		**********				
		(Ref.No. 7,000 Series)				
		< CAPACITOR >				
C101	1-163-243-11	CERAMIC CHIP	47PF	5%	50V	
C102	1-163-243-11	CERAMIC CHIP	47PF	5%	50V	
C103	1-163-243-11	CERAMIC CHIP	47PF	5%	50V	
C104	1-163-243-11	CERAMIC CHIP	47PF	5%	50V	
C105	1-163-243-11	CERAMIC CHIP	47PF	5%	50V	
C106	1-163-243-11	CERAMIC CHIP	47PF	5%	50V	
C108	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C115	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
		< CONNECTOR >				
CN101	1-764-129-11	CONNECTOR, FPC 15P				
CN102	1-764-129-11	CONNECTOR, FPC 15P				
		< DIODE >				
D101	8-719-421-59	DIODE	MA3075WA- (TX)			
D102	8-719-421-59	DIODE	MA3075WA- (TX)			
D103	8-719-421-59	DIODE	MA3075WA- (TX)			
D104	8-719-421-59	DIODE	MA3075WA- (TX)			
D105	8-719-421-59	DIODE	MA3075WA- (TX)			
D106	8-719-421-59	DIODE	MA3075WA- (TX)			
D107	8-719-421-59	DIODE	MA3075WA- (TX)			
D108	8-719-421-59	DIODE	MA3075WA- (TX)			
D109	8-719-421-59	DIODE	MA3075WA- (TX)			
D110	8-719-421-59	DIODE	MA3075WA- (TX)			
D111	8-719-421-59	DIODE	MA3075WA- (TX)			
D112	8-719-421-59	DIODE	MA3075WA- (TX)			
D113	8-719-421-59	DIODE	MA3075WA- (TX)			
D114	8-719-421-59	DIODE	MA3075WA- (TX)			
D115	8-719-421-59	DIODE	MA3075WA- (TX)			
		< FERRITE BEAD >				
FB101	1-500-241-22	FERRITE	0uH			
FB102	1-500-241-22	FERRITE	0uH			
FB103	1-500-241-22	FERRITE	0uH			
FB104	1-500-241-22	FERRITE	0uH			
FB105	1-500-241-22	FERRITE	0uH			
FB106	1-500-241-22	FERRITE	0uH			
		< JACK >				
J101	1-694-410-11	TERMINAL BOARD				
		(INPUT/OUTPUT/MONITOR)				
		< JUMPER RESISTOR >				
JR101	1-216-296-91	SHORT	0			
JR102	1-216-296-91	SHORT	0			

Ref. No.	Part No.	Description			Remark
JR103	1-216-296-91	SHORT	0		
JR104	1-216-296-91	SHORT	0		
JR105	1-216-296-91	SHORT	0		
JR106	1-216-296-91	SHORT	0		
JR107	1-216-296-91	SHORT	0		
JR108	1-216-296-91	SHORT	0		
JR109	1-216-296-91	SHORT	0		
JR110	1-216-296-91	SHORT	0		
JR111	1-216-296-91	SHORT	0		
JR112	1-216-296-91	SHORT	0		
JR113	1-216-296-91	SHORT	0		
JR114	1-216-296-91	SHORT	0		
JR115	1-216-296-91	SHORT	0		
JR116	1-216-296-91	SHORT	0		
JR117	1-216-296-91	SHORT	0		
JR118	1-216-296-91	SHORT	0		
JR119	1-216-296-91	SHORT	0		
JR120	1-216-296-91	SHORT	0		
JR121	1-216-296-91	SHORT	0		
JR122	1-216-296-91	SHORT	0		
JR123	1-216-296-91	SHORT	0		
		< RESISTOR >			
R105	1-216-295-91	SHORT	0		
R106	1-216-022-00	METAL CHIP	75	5%	1/10W
R107	1-216-022-00	METAL CHIP	75	5%	1/10W
R108	1-216-022-00	METAL CHIP	75	5%	1/10W
R109	1-216-295-91	SHORT	0		
R110	1-216-295-91	SHORT	0		
R111	1-216-295-91	SHORT	0		
R112	1-216-295-91	SHORT	0		
R113	1-216-295-91	SHORT	0		
R114	1-216-295-91	SHORT	0		
R115	1-216-295-91	SHORT	0		
		< SWITCH >			
S101	1-570-974-11	SWITCH, SLIDE (SYNC)			
*	A-7067-132-A	RP-228 BOARD, COMPLETE (DSR-20MD)			
*	A-7067-128-A	RP-228 BOARD, COMPLETE (DSR-20MDP)			
		**********			
		(Ref.No. 3,000 Series)			
	1-776-149-11	CABLE, FLEXIBLE FLAT 30P			
	1-783-376-11	CABLE, FLEXIBLE FLAT (FFC-245)			
		< CAPACITOR >			
C146	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C148	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C701	1-164-174-11	CERAMIC CHIP	0.0082uF	10%	25V
C702	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C703	1-164-174-11	CERAMIC CHIP	0.0082uF	10%	25V
C704	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C705	1-164-173-11	CERAMIC CHIP	0.0039uF	10%	50V
C706	1-164-173-11	CERAMIC CHIP	0.0039uF	10%	50V
C761	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C762	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C763	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C770	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C771	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C772	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C773	1-113-619-11	CERAMIC CHIP	0.47uF		10V
C774	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C775	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C776	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C777	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C778	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C779	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C780	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C781	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C782	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C783	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C784	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C786	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C788	1-104-851-11	TANTALUM CHIP	10uF	20%	10V
C789	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C791	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C792	1-119-750-11	TANTALUM CHIP	22uF	20%	6.3V
C793	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C794	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C795	1-128-004-11	ELECT CHIP	10uF	20%	16V
C796	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C797	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C798	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C799	1-164-217-11	CERAMIC CHIP	150PF	5%	50V
C803	1-164-217-11	CERAMIC CHIP	150PF	5%	50V
C811	1-113-619-11	CERAMIC CHIP	0.47uF		10V
C813	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C814	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C815	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C816	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C817	1-104-851-11	TANTALUM CHIP	10uF	20%	10V
C818	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C819	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C821	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C822	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C823	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C824	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C825	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C826	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C827	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C828	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C829	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C830	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C831	1-135-259-11	TANTALUM CHIP	10uF	20%	6.3V
C832	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C833	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C834	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C835	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C836	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C837	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C838	1-162-913-11	CERAMIC CHIP	8PF	0.5PF	50V
C839	1-162-913-11	CERAMIC CHIP	8PF	0.5PF	50V
C841	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C842	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C843	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C844	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C845	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V
C847	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C848	1-104-851-11	TANTALUM CHIP	10uF	20%	10V

Ref. No.	Part No.	Description			Remark
C850	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C853	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C854	1-104-851-11	TANTALUM CHIP	10uF	20%	10V
C855	1-104-851-11	TANTALUM CHIP	10uF	20%	10V
C857	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C859	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C861	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C862	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C874	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C875	1-135-259-11	TANTALUM CHIP	10uF	20%	6.3V
		< CONNECTOR >			
CN101	1-750-345-11	CONNECTOR, FFC/EPC (ZIF) 30P			
CN102	1-750-345-11	CONNECTOR, FFC/EPC (ZIF) 30P			
CN103	1-750-345-11	CONNECTOR, FFC/EPC (ZIF) 30P			
CN771	1-770-305-11	CONNECTOR, FFC/FPC 10P			
CN775	1-750-303-41	CONNECTOR, BOARD TO BOARD 20P			
		< DIODE >			
D771	8-719-073-01	DIODE MA111-TX			
D772	8-719-073-01	DIODE MA111-TX			
D773	8-719-055-86	DIODE KV1470TL1-3			
D774	8-719-052-27	DIODE 1SS351-TB			
D775	8-719-052-27	DIODE 1SS351-TB			
D791	8-719-073-01	DIODE MA111-TX			
		< FILTER >			
FL770	1-411-951-21	DELAY LINE, LC (23NS)			
FL771	1-233-734-21	FILTER, LOW PASS			
		< IC >			
IC770	8-759-445-93	IC AK6440AM-E2			
IC771	8-759-426-25	IC MB88346LPFV-G-BND-ER			
IC772	8-752-371-18	IC CXD2302Q-T4			
IC773	8-752-070-12	IC CXA1762Q-T4			
IC774	8-752-386-38	IC CXD3105R-T6			
IC775	8-752-074-59	IC CXA2023R-T4			
IC777	8-752-073-50	IC CXA2018Q-T4			
IC791	8-759-426-83	IC TK11228BMCL			
		< COIL >			
L105	1-414-398-11	INDUCTOR	10uH		
L770	1-414-398-11	INDUCTOR	10uH		
L773	1-414-398-11	INDUCTOR	10uH		
L774	1-414-398-11	INDUCTOR	10uH		
L776	1-414-398-11	INDUCTOR	10uH		
L779	1-410-737-31	INDUCTOR CHIP	0.47uH		
L781	1-412-963-11	INDUCTOR	100uH		
L782	1-412-963-11	INDUCTOR	100uH		
L783	1-414-398-11	INDUCTOR	10uH		
L784	1-414-398-11	INDUCTOR	10uH		
L789	1-414-398-11	INDUCTOR	10uH		
		< TRANSISTOR >			
Q105	8-729-037-52	TRANSISTOR	2SD2216J-QR (TX).SO		
Q109	8-729-037-52	TRANSISTOR	2SD2216J-QR (TX).SO		
Q701	8-729-013-04	TRANSISTOR	2SC4851-TL		
Q702	8-729-013-04	TRANSISTOR	2SC4851-TL		
Q772	8-729-037-72	TRANSISTOR	UN9211J- (TX).SO		

Ref. No.	Part No.	Description			Remark
Q773	8-729-141-48	TRANSISTOR	2SB624-T1BV4		
Q774	8-729-141-48	TRANSISTOR	2SB624-T1BV4		
Q775	8-729-037-72	TRANSISTOR	UN9211J- (TX).SO		
Q776	8-729-037-52	TRANSISTOR	2SD2216J-QR (TX).SO		
Q777	8-729-037-52	TRANSISTOR	2SD2216J-QR (TX).SO		
Q778	8-729-037-52	TRANSISTOR	2SD2216J-QR (TX).SO		
Q779	8-729-037-52	TRANSISTOR	2SD2216J-QR (TX).SO		
Q784	8-729-037-53	TRANSISTOR	2SB1462J-QR (TX).SO		
		< RESISTOR >			
R117	1-216-807-11	METAL CHIP	68	5%	1/16W
R118	1-216-833-91	RES, CHIP	10K	5%	1/16W
R120	1-216-864-11	METAL CHIP	0	5%	1/16W
R121	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R122	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R123	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-20MD)
R124	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-20MDP)
R137	1-216-807-11	METAL CHIP	68	5%	1/16W
R138	1-216-833-91	RES, CHIP	10K	5%	1/16W
R143	1-216-833-91	RES, CHIP	10K	5%	1/16W
R144	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R147	1-216-864-11	METAL CHIP	0	5%	1/16W
R206	1-216-821-11	METAL CHIP	1K	5%	1/16W
R308	1-216-821-11	METAL CHIP	1K	5%	1/16W
R309	1-216-821-11	METAL CHIP	1K	5%	1/16W
R310	1-216-821-11	METAL CHIP	1K	5%	1/16W
R311	1-216-821-11	METAL CHIP	1K	5%	1/16W
R312	1-216-821-11	METAL CHIP	1K	5%	1/16W
R313	1-216-821-11	METAL CHIP	1K	5%	1/16W
R314	1-216-821-11	METAL CHIP	1K	5%	1/16W
R315	1-216-864-11	METAL CHIP	0	5%	1/16W
R316	1-216-833-91	RES, CHIP	10K	5%	1/16W
R701	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R702	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R703	1-216-809-11	METAL CHIP	100	5%	1/16W
R704	1-216-810-11	METAL CHIP	120	5%	1/16W
R705	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R706	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R707	1-216-809-11	METAL CHIP	100	5%	1/16W
R708	1-216-810-11	METAL CHIP	120	5%	1/16W
R770	1-216-845-11	METAL CHIP	100K	5%	1/16W
R772	1-216-296-91	SHORT	0		
R774	1-216-841-11	METAL CHIP	47K	5%	1/16W
R776	1-216-818-11	METAL CHIP	560	5%	1/16W
R779	1-216-847-11	METAL CHIP	150K	5%	1/16W
R780	1-216-837-11	METAL CHIP	22K	5%	1/16W
R782	1-216-833-91	RES, CHIP	10K	5%	1/16W
R783	1-216-833-91	RES, CHIP	10K	5%	1/16W
R786	1-216-817-11	METAL CHIP	470	5%	1/16W
R787	1-202-924-11	RES, CHIP	240	5%	1/16W
R788	1-202-924-11	RES, CHIP	240	5%	1/16W
R789	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R790	1-216-841-11	METAL CHIP	47K	5%	1/16W
R791	1-216-815-11	METAL CHIP	330	5%	1/16W
R792	1-216-814-11	METAL CHIP	270	5%	1/16W
R793	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R794	1-216-816-11	METAL CHIP	390	5%	1/16W
R796	1-216-809-11	METAL CHIP	100	5%	1/16W
R797	1-216-827-11	METAL CHIP	3.3K	5%	1/16W

Ref. No.	Part No.	Description			Remark
R798	1-216-815-11	METAL CHIP	330	5%	1/16W
R799	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R800	1-216-833-91	RES, CHIP	10K	5%	1/16W
R801	1-216-833-91	RES, CHIP	10K	5%	1/16W
R802	1-216-841-11	METAL CHIP	47K	5%	1/16W
R804	1-216-839-11	METAL CHIP	33K	5%	1/16W
R806	1-216-821-11	METAL CHIP	1K	5%	1/16W
R808	1-216-821-11	METAL CHIP	1K	5%	1/16W
R810	1-216-837-11	METAL CHIP	22K	5%	1/16W
R812	1-216-837-11	METAL CHIP	22K	5%	1/16W
R814	1-216-853-11	METAL CHIP	470K	5%	1/16W
R815	1-216-853-11	METAL CHIP	470K	5%	1/16W
R818	1-216-837-11	METAL CHIP	22K	5%	1/16W
R819	1-216-839-11	METAL CHIP	33K	5%	1/16W
R820	1-216-803-11	METAL CHIP	33	5%	1/16W
R822	1-216-834-11	METAL CHIP	12K	5%	1/16W
R824	1-216-821-11	METAL CHIP	1K	5%	1/16W
R825	1-216-841-11	METAL CHIP	47K	5%	1/16W
R826	1-216-839-11	METAL CHIP	33K	5%	1/16W
R827	1-216-821-11	METAL CHIP	1K	5%	1/16W
R830	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R832	1-216-807-11	METAL CHIP	68	5%	1/16W
R843	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R844	1-216-837-11	METAL CHIP	22K	5%	1/16W
R849	1-218-837-11	METAL CHIP	390	0.5%	1/16W
R850	1-218-835-11	METAL CHIP	330	0.5%	1/16W
R851	1-218-835-11	METAL CHIP	330	0.5%	1/16W
R852	1-218-837-11	METAL CHIP	390	0.5%	1/16W
R858	1-216-816-11	METAL CHIP	390	5%	1/16W

*	A-7073-472-A	RS-78 BOARD, COMPLETE			
		**********			
		(Ref.No. 6,000 Series)			
		< CAPACITOR >			
C001	1-164-346-11	CERAMIC CHIP	1uF		16V
C002	1-164-346-11	CERAMIC CHIP	1uF		16V
C003	1-164-346-11	CERAMIC CHIP	1uF		16V
C004	1-164-346-11	CERAMIC CHIP	1uF		16V
C005	1-164-346-11	CERAMIC CHIP	1uF		16V
C006	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C007	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
		< CONNECTOR >			
CN001	1-770-693-11	CONNECTOR, FFC/FPC 10P			
CN002	1-565-388-21	CONNECTOR, D-SUB 9P (REMOTE RS-232C)			
		< DIODE >			
D001	8-719-062-19	DIODE MA3200WA-TX			
D002	8-719-062-19	DIODE MA3200WA-TX			
D003	8-719-062-19	DIODE MA3200WA-TX			
D004	8-719-062-19	DIODE MA3200WA-TX			
D005	8-719-062-19	DIODE MA3200WA-TX			
		< FERRITE BEAD >			
FB001	1-500-241-22	FERRITE	0uH		
FB002	1-500-241-22	FERRITE	0uH		
FB003	1-500-241-22	FERRITE	0uH		
FB004	1-500-241-22	FERRITE	0uH		
FB005	1-500-241-22	FERRITE	0uH		

Ref. No.	Part No.	Description	Remark
		< IC >	
IC002	8-759-521-15	IC MAX232CWE-TE-2	
		< COIL >	
L001	1-412-029-11	INDUCTOR CHIP 10uH	

*	A-7067-250-A	VA-102 BOARD, COMPLETE (DSR-20MD)			
*	A-7067-251-A	VA-102 BOARD, COMPLETE (DSR-20MDP)			
		**********			
		(Ref.No. 1,000 Series)			
		< CAPACITOR >			
C051	1-113-619-11	CERAMIC CHIP	0.47uF		10V
C052	1-164-230-11	CERAMIC CHIP	220PF	5%	50V
C053	1-113-619-11	CERAMIC CHIP	0.47uF		10V
C055	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C056	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C057	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C058	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C059	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C101	1-128-004-11	ELECT CHIP	10uF	20%	16V
C102	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C103	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C104	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C105	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C106	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C107	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C108	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C109	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C110	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C111	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C201	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C202	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C203	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C204	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C205	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C206	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C207	1-162-958-11	CERAMIC CHIP	270PF	5%	50V
C208	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C209	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C210	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C211	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C212	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C213	1-128-003-11	ELECT CHIP	22uF	20%	4V
C214	1-128-003-11	ELECT CHIP	22uF	20%	4V
C215	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C216	1-128-003-11	ELECT CHIP	22uF	20%	4V
C217	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C218	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C219	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C220	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C221	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C223	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C224	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C225	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C226	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C227	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C228	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C229	1-128-007-11	ELECT CHIP	2.2uF	20%	35V

Ref. No.	Part No.	Description			Remark
C230	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C231	1-128-006-11	ELECT CHIP	4.7uF	20%	25V
C232	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C233	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C234	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C235	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C236	1-128-006-11	ELECT CHIP	4.7uF	20%	25V
C237	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C238	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C239	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C240	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C241	1-128-004-11	ELECT CHIP	10uF	20%	16V
C242	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C243	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C244	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C245	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C246	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C247	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C248	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C249	1-128-006-11	ELECT CHIP	4.7uF	20%	25V
C250	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C251	1-162-911-11	CERAMIC CHIP	6PF	0.5PF	50V (DSR-20MD)
C251	1-162-910-11	CERAMIC CHIP	5PF	0.25PF	50V (DSR-20MDP)
C252	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C253	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C254	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C255	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C256	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C257	1-128-003-11	ELECT CHIP	22uF	20%	4V
C258	1-128-003-11	ELECT CHIP	22uF	20%	4V
C260	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C261	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C262	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C264	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C265	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C266	1-115-156-11	CERAMIC CHIP	1uF		10V
C268	1-113-619-11	CERAMIC CHIP	0.47uF		10V
C269	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C270	1-115-156-11	CERAMIC CHIP	1uF		10V
C271	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C272	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C273	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C274	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C275	1-128-006-11	ELECT CHIP	4.7uF	20%	25V
C276	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C277	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C278	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C279	1-128-006-11	ELECT CHIP	4.7uF	20%	25V
C280	1-128-003-11	ELECT CHIP	22uF	20%	4V
C281	1-162-911-11	CERAMIC CHIP	6PF	0.5PF	50V
C282	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C283	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C284	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C285	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C286	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C287	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C288	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C290	1-128-003-11	ELECT CHIP	22uF	20%	4V

Ref. No.	Part No.	Description			Remark
C291	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V (DSR-20MDP)
C292	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C293	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C294	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C295	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C297	1-128-003-11	ELECT CHIP	22uF	20%	4V
C300	1-164-360-11	CERAMIC CHIP	0.1uF		16V (DSR-20MDP)
C301	1-162-927-11	CERAMIC CHIP	100PF	5%	50V (DSR-20MDP)
C304	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C305	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C307	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C308	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C309	1-164-360-11	CERAMIC CHIP	0.1uF		16V (DSR-20MDP)
C311	1-128-004-11	ELECT CHIP	10uF	20%	16V (DSR-20MDP)
C312	1-164-360-11	CERAMIC CHIP	0.1uF		16V (DSR-20MDP)
C313	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C314	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C401	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C402	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C403	1-128-003-11	ELECT CHIP	22uF	20%	4V
C404	1-128-003-11	ELECT CHIP	22uF	20%	4V
C405	1-128-003-11	ELECT CHIP	22uF	20%	4V
C406	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C407	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C408	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C409	1-128-003-11	ELECT CHIP	22uF	20%	4V
C410	1-128-007-11	ELECT CHIP	2.2uF	20%	35V
C411	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C412	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C413	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C414	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C415	1-128-003-11	ELECT CHIP	22uF	20%	4V
C416	1-128-003-11	ELECT CHIP	22uF	20%	4V
C417	1-162-959-11	CERAMIC CHIP	330PF	5%	50V
C418	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C419	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C420	1-115-156-11	CERAMIC CHIP	1uF		10V
C421	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C422	1-164-343-11	CERAMIC CHIP	0.056uF	10%	25V
C423	1-163-139-00	CERAMIC CHIP	820PF	5%	50V
C425	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C426	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C427	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C429	1-115-156-11	CERAMIC CHIP	1uF		10V
C430	1-115-156-11	CERAMIC CHIP	1uF		10V
C433	1-115-156-11	CERAMIC CHIP	1uF		10V
C434	1-115-156-11	CERAMIC CHIP	1uF		10V
C435	1-115-156-11	CERAMIC CHIP	1uF		10V
C436	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C437	1-128-003-11	ELECT CHIP	22uF	20%	4V
C438	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C441	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C443	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C444	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C445	1-115-156-11	CERAMIC CHIP	1uF		10V

VA-102

Ref. No.	Part No.	Description			Remark
C446	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C447	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C448	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C449	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C450	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C451	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C453	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C454	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C455	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C456	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C457	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C459	1-115-156-11	CERAMIC CHIP	1uF		10V
C460	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C461	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C462	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C463	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C464	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C465	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C466	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C467	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C468	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C469	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C470	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C471	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C472	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C473	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C474	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C475	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C476	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C477	1-162-909-11	CERAMIC CHIP	4PF	0.25PF	50V (DSR-20MDP)
C478	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C479	1-164-237-11	CERAMIC CHIP	16PF	5%	50V
C480	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C481	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C482	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C483	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C484	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C485	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C486	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C487	1-128-004-11	ELECT CHIP	10uF	20%	16V
C489	1-162-920-11	CERAMIC CHIP	27PF	5%	50V
C490	1-162-905-11	CERAMIC CHIP	1PF	0.25PF	50V
C491	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C492	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C493	1-128-004-11	ELECT CHIP	10uF	20%	16V
C494	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C496	1-128-007-11	ELECT CHIP	2.2uF	20%	35V
C497	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C498	1-128-003-11	ELECT CHIP	22uF	20%	4V
C500	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C501	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C503	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C505	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C506	1-128-004-11	ELECT CHIP	10uF	20%	16V
C601	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C602	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C603	1-128-004-11	ELECT CHIP	10uF	20%	16V
C604	1-115-156-11	CERAMIC CHIP	1uF		10V
C606	1-128-004-11	ELECT CHIP	10uF	20%	16V
C608	1-128-004-11	ELECT CHIP	10uF	20%	16V

Ref. No.	Part No.	Description			Remark
C612	1-162-920-11	CERAMIC CHIP	27PF	5%	50V (DSR-20MD)
C612	1-162-921-11	CERAMIC CHIP	33PF	5%	50V (DSR-20MDP)
C613	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C614	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C615	1-162-917-11	CERAMIC CHIP	15PF	5%	50V (DSR-20MD)
C616	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C618	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C619	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C621	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C624	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C628	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C629	1-164-230-11	CERAMIC CHIP	220PF	5%	50V
C630	1-128-004-11	ELECT CHIP	10uF	20%	16V
C631	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C651	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C652	1-128-004-11	ELECT CHIP	10uF	20%	16V
C653	1-162-909-11	CERAMIC CHIP	4PF	0.25PF	50V (DSR-20MDP)
C654	1-128-003-11	ELECT CHIP	22uF	20%	4V
C655	1-128-004-11	ELECT CHIP	10uF	20%	16V
C656	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C657	1-162-928-11	CERAMIC CHIP	120PF	5%	50V
C658	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C659	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C660	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C662	1-128-007-11	ELECT CHIP	2.2uF	20%	35V
C663	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C664	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C665	1-164-237-11	CERAMIC CHIP	16PF	5%	50V
C666	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C667	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C670	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C671	1-115-156-11	CERAMIC CHIP	1uF		10V
C672	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C673	1-164-343-11	CERAMIC CHIP	0.056uF	10%	25V
C674	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C675	1-163-139-00	CERAMIC CHIP	820PF	5%	50V
C676	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C678	1-128-003-11	ELECT CHIP	22uF	20%	4V
C680	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C681	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C682	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C683	1-126-927-11	ELECT	1000uF	20%	6.3V
C701	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C702	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C703	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C704	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C705	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C706	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C707	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C708	1-128-004-11	ELECT CHIP	10uF	20%	16V
C709	1-128-004-11	ELECT CHIP	10uF	20%	16V
C710	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C711	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C713	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C714	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C715	1-164-389-11	CERAMIC CHIP	300PF	5%	50V

Ref. No.	Part No.	Description			Remark
C716	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C717	1-164-389-11	CERAMIC CHIP	300PF	5%	50V
C719	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C720	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C721	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C722	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C723	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C724	1-164-389-11	CERAMIC CHIP	300PF	5%	50V
C725	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C726	1-164-389-11	CERAMIC CHIP	300PF	5%	50V
C727	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C728	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C729	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C730	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C731	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C732	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C733	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C734	1-128-007-11	ELECT CHIP	2.2uF	20%	35V
C735	1-128-007-11	ELECT CHIP	2.2uF	20%	35V
C736	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C737	1-164-389-11	CERAMIC CHIP	300PF	5%	50V
C738	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C739	1-164-389-11	CERAMIC CHIP	300PF	5%	50V
C740	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C741	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C742	1-164-389-11	CERAMIC CHIP	300PF	5%	50V
C743	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C744	1-164-389-11	CERAMIC CHIP	300PF	5%	50V
C745	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C746	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C747	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C748	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C749	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C750	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C751	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C752	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C753	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C754	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C755	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C756	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C757	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C758	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C759	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C760	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C761	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C762	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C763	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C764	1-128-004-11	ELECT CHIP	10uF	20%	16V
C765	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C766	1-128-004-11	ELECT CHIP	10uF	20%	16V
C767	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C768	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C771	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C772	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C773	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C774	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C851	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C852	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C853	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C854	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C855	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C856	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C858	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C859	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C860	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C861	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C862	1-126-204-11	ELECT CHIP	47uF	20%	16V
C863	1-126-400-11	ELECT	22uF	20%	35V
C864	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C865	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C866	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C867	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C869	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C870	1-128-013-11	ELECT CHIP	1uF	20%	50V
C871	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C872	1-162-975-11	CERAMIC CHIP	24PF	5%	50V
C874	1-126-204-11	ELECT CHIP	47uF	20%	16V
C875	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C876	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C877	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C881	1-126-927-11	ELECT	1000uF	20%	6.3V
C883	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C886	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C887	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C888	1-128-004-11	ELECT CHIP	10uF	20%	16V
C889	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C890	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C891	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C892	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C893	1-126-392-11	ELECT CHIP	100uF	20%	6.3V
C894	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C895	1-126-392-11	ELECT CHIP	100uF	20%	6.3V
C896	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C897	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C898	1-126-396-11	ELECT CHIP	47uF	20%	16V
C899	1-126-396-11	ELECT CHIP	47uF	20%	16V
C900	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C901	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C906	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C907	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C908	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C909	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C910	1-109-994-11	CERAMIC CHIP	2.2uF	10%	10V
C912	1-104-905-11	CAPACITOR	0.22F		5.5V
C913	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C914	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C915	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C916	1-128-013-11	ELECT CHIP	1uF	20%	50V
C917	1-126-197-11	ELECT CHIP	10uF	20%	50V
C918	1-126-204-11	ELECT CHIP	47uF	20%	16V
C919	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C920	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C921	1-126-393-11	ELECT CHIP	33uF	20%	10V
C922	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V

< CONNECTOR >

CN051	1-770-305-11	CONNECTOR, FFC/FPC 10P	
CN101	1-774-770-11	CONNECTOR, FFC/FPC 30P	
CN102	1-774-770-11	CONNECTOR, FFC/FPC 30P	
CN401	1-774-767-11	CONNECTOR, FFC/FPC 15P	
* CN601	1-564-005-11	PIN, CONNECTOR 6P	

VA-102

Ref. No.	Part No.	Description	Remark
CN602	1-779-369-11	CONNECTOR, SQUARE TYPE (INDI) 4P (DV IN/OUT)	
* CN701	1-691-591-11	PIN, CONNECTOR (1.5mm) (SMD) 8P	
CN702	1-778-276-11	CONNECTOR, FFC/FPC 12P	
CN703	1-774-767-11	CONNECTOR, FFC/FPC 15P	
CN851	1-774-770-11	CONNECTOR, FFC/FPC 30P	
CN852	1-506-473-11	PIN, CONNECTOR 8P	
		< TRIMMER >	
CT201	1-141-424-11	CAP, ADJ (DECODER FREERUN)	
CT401	1-141-424-11	CAP, ADJ (ENCODER FREERUN)	
		< DIODE >	
D051	8-719-421-71	DIODE MA132WA-TX	
D052	8-719-421-71	DIODE MA132WA-TX	
D201	8-719-073-01	DIODE MA111-TX	
D202	8-719-073-01	DIODE MA111-TX	
D401	8-713-101-85	DIODE 1T363-01-T8A	
D403	8-719-073-01	DIODE MA111-TX	
D404	8-719-073-01	DIODE MA111-TX	
D851	8-719-421-59	DIODE MA3075WA- (TX)	
D852	8-719-421-59	DIODE MA3075WA- (TX)	
D853	8-719-400-71	DIODE MA3082-TX	
D855	8-719-421-51	DIODE MA738-TX	
D856	8-719-073-28	DIODE MA729- (K8).S0	
D858	8-719-073-01	DIODE MA111-TX	
D859	8-719-073-01	DIODE MA111-TX	
D861	8-719-400-56	DIODE MA3062H-TX	
D862	8-719-421-59	DIODE MA3075WA- (TX)	
D863	8-719-059-18	DIODE RD6.2FM-T1	
D864	8-719-421-27	DIODE MA728- (K8).S0	
D866	8-719-073-01	DIODE MA111-TX	
D867	8-719-421-51	DIODE MA738-TX	
		< DELAY LINE >	
DL201	1-411-661-11	LINE, LC DELAY	
		< FERRITE BEAD >	
FB851	1-543-948-22	FERRITE 0uH	
FB852	1-543-948-22	FERRITE 0uH	
FB853	1-543-948-22	FERRITE 0uH	
		< FILTER >	
FL201	1-236-925-11	FILTER, LOW PASS	
FL202	1-236-926-11	FILTER, BAND PASS (DSR-20MD)	
FL202	1-239-153-11	FILTER, BAND PASS (DSR-20MDP)	
FL203	1-233-501-11	FILTER, LOW PASS	
FL204	1-233-500-11	FILTER, LOW PASS	
FL205	1-233-501-11	FILTER, LOW PASS	
FL401	1-233-502-11	FILTER, BAND PASS (DSR-20MD)	
FL401	1-233-591-11	FILTER, BAND PASS (DSR-20MDP)	
		< IC >	
IC051	8-759-032-23	IC TC74HC74AF (EL)	
IC052	8-759-521-97	IC HD6433837SC05H	
IC053	8-759-096-87	IC TC7WU04FU (TE12R)	
IC101	8-759-523-81	IC TC74VHC08FT (EL)	
IC102	8-759-327-60	IC TC7W125FU-TE12R	
IC103	8-759-524-04	IC TC74VHC125FT (EL)	
IC104	8-759-079-53	IC TC74VHCT08FS (EL)	
IC105	8-759-079-53	IC TC74VHCT08FS (EL)	
IC106	8-759-079-53	IC TC74VHCT08FS (EL)	
IC201	8-759-337-26	IC MM1115XFBE	
IC202	8-759-433-44	IC MM1031XML	
IC203	8-759-337-26	IC MM1115XFBE	
IC204	8-759-432-78	IC MM1111XFBE	
IC205	8-759-420-62	IC AN3916	
IC206	8-759-711-62	IC NJM2240M (TE2)	
IC207	8-752-352-20	IC CXD2023Q (DSR-20MD)	
IC207	8-752-372-78	IC CXD2024AQ-TL (DSR-20MDP)	
IC208	8-759-603-54	IC M51271FP-70AD	
IC210	8-759-239-58	IC TC74HC221AF (EL) (DSR-20MDP)	
IC213	8-759-058-54	IC TC7S00FU (TE85R) (DSR-20MDP)	
IC401	8-759-337-26	IC MM1115XFBE	
IC402	8-759-432-78	IC MM1111XFBE	
IC403	8-759-164-09	IC LA7218M-TE-R	
IC404	8-752-056-59	IC CXA1592R-T4	
IC405	8-759-483-56	IC MB90089PF-G-196-BND-ER	
IC406	8-759-182-16	IC MM1196XFBE	
IC407	8-752-374-89	IC CXD2192Q-T4	
IC602	8-759-349-01	IC MC68HC68VBIFB	
IC651	8-759-368-82	IC MB90089PF-G-155-BND-ER	
IC652	8-759-164-09	IC LA7218M-TE-R	
IC653	8-759-337-26	IC MM1115XFBE	
IC701	8-759-358-47	IC NJM2115V (TE2)	
IC702	8-759-523-02	IC TC74HC4053AFT (EL)	
IC703	8-759-523-02	IC TC74HC4053AFT (EL)	
IC704	8-759-358-47	IC NJM2115V (TE2)	
IC705	8-759-358-47	IC NJM2115V (TE2)	
IC706	8-759-358-47	IC NJM2115V (TE2)	
IC707	8-759-358-47	IC NJM2115V (TE2)	
IC708	8-759-481-66	IC DS1801E-014TE2	
IC709	8-759-358-47	IC NJM2115V (TE2)	
IC710	8-759-358-47	IC NJM2115V (TE2)	
IC711	8-759-523-02	IC TC74HC4053AFT (EL)	
IC712	8-759-358-47	IC NJM2115V (TE2)	
IC713	8-759-358-47	IC NJM2115V (TE2)	
IC714	8-759-358-47	IC NJM2115V (TE2)	
IC715	8-759-358-47	IC NJM2115V (TE2)	
IC716	8-759-358-47	IC NJM2115V (TE2)	
IC717	8-759-358-47	IC NJM2115V (TE2)	
IC718	8-759-358-47	IC NJM2115V (TE2)	
IC851	8-759-356-27	IC NJM2129M-TE2	
IC852	8-759-545-30	IC S579178PJ	
IC853	8-759-523-02	IC TC74HC4053AFT (EL)	
IC854	8-759-445-93	IC AK6440AM-E2	
IC856	1-473-301-11	CONVERTER UNIT, DC/DC	
IC857	8-759-538-14	IC S-3513BEFS-TB	
IC858	8-759-248-87	IC MM1256XF-BE	
IC861	8-759-536-72	IC TL1596CPW-ELM2000	
IC862	8-759-822-95	IC L79M05T-FA-TL	
IC863	8-759-157-22	IC PQ05TZ1U	
IC864	8-759-929-26	IC TL431CPSR	
IC865	8-759-523-78	IC TC74VHC00FT (EL)	
IC866	8-759-363-18	IC TC7ST04FU (TE85R)	
		< JACK >	
J851	1-573-798-11	JACK, MINIATURE (DIA. 3.5) (CONTROL S IN)	

Ref. No.	Part No.	Description	Remark
J852	1-573-798-11	JACK, MINIATURE (DIA. 3.5) (CONTROL S OUT)	
J853	1-691-258-11	JACK (LANC)	
		< COIL >	
L051	1-412-029-11	INDUCTOR CHIP 10uH	
L201	1-412-029-11	INDUCTOR CHIP 10uH	
L202	1-410-381-11	INDUCTOR CHIP 10uH	
L203	1-412-029-11	INDUCTOR CHIP 10uH	
L204	1-412-029-11	INDUCTOR CHIP 10uH	
L205	1-412-029-11	INDUCTOR CHIP 10uH	
L206	1-412-029-11	INDUCTOR CHIP 10uH	
L207	1-412-029-11	INDUCTOR CHIP 10uH	
L208	1-410-381-11	INDUCTOR CHIP 10uH	
L211	1-412-808-21	INDUCTOR 470uH	
L213	1-412-031-11	INDUCTOR CHIP 47uH	
L216	1-412-029-11	INDUCTOR CHIP 10uH	
L217	1-412-029-11	INDUCTOR CHIP 10uH	
L218	1-412-029-11	INDUCTOR CHIP 10uH	
L219	1-412-029-11	INDUCTOR CHIP 10uH	
L220	1-412-029-11	INDUCTOR CHIP 10uH (DSR-20MDP)	
L401	1-412-029-11	INDUCTOR CHIP 10uH	
L402	1-412-029-11	INDUCTOR CHIP 10uH	
L403	1-412-029-11	INDUCTOR CHIP 10uH	
L404	1-412-029-11	INDUCTOR CHIP 10uH	
L406	1-412-030-11	INDUCTOR CHIP 22uH	
L407	1-412-029-11	INDUCTOR CHIP 10uH	
L408	1-412-026-11	INDUCTOR CHIP 1uH	
L409	1-412-034-11	INDUCTOR CHIP 330uH	
L410	1-410-385-11	INDUCTOR CHIP 22uH	
L411	1-412-029-11	INDUCTOR CHIP 10uH	
L412	1-412-029-11	INDUCTOR CHIP 10uH	
L601	1-412-029-11	INDUCTOR CHIP 10uH	
L602	1-410-389-31	INDUCTOR CHIP 47uH (DSR-20MD)	
L602	1-410-388-31	INDUCTOR CHIP 39uH (DSR-20MDP)	
L603	1-412-029-11	INDUCTOR CHIP 10uH	
L604	1-412-029-11	INDUCTOR CHIP 10uH	
L651	1-412-029-11	INDUCTOR CHIP 10uH	
L652	1-410-385-11	INDUCTOR CHIP 22uH	
L653	1-410-385-11	INDUCTOR CHIP 22uH	
L654	1-412-029-11	INDUCTOR CHIP 10uH	
L655	1-412-026-11	INDUCTOR CHIP 1uH	
L656	1-410-385-11	INDUCTOR CHIP 22uH	
L657	1-412-029-11	INDUCTOR CHIP 10uH	
L851	1-412-026-11	INDUCTOR CHIP 1uH	
L852	1-412-026-11	INDUCTOR CHIP 1uH	
L853	1-412-031-11	INDUCTOR CHIP 47uH	
L854	1-412-029-11	INDUCTOR CHIP 10uH	
L855	1-412-028-11	INDUCTOR CHIP 4.7uH	
L856	1-412-028-11	INDUCTOR CHIP 4.7uH	
L857	1-412-028-11	INDUCTOR CHIP 4.7uH	
L858	1-412-028-11	INDUCTOR CHIP 4.7uH	
		< TRANSISTOR >	
Q101	8-729-015-76	TRANSISTOR UN5211-TX	
Q102	8-729-015-76	TRANSISTOR UN5211-TX	
Q103	8-729-015-76	TRANSISTOR UN5211-TX	
Q107	8-729-015-76	TRANSISTOR UN5211-TX	
Q108	8-729-015-76	TRANSISTOR UN5211-TX	
Q201	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q202	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q203	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q204	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q205	8-729-026-52	TRANSISTOR 2SA1576A-T106-R	
Q206	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q207	8-729-026-52	TRANSISTOR 2SA1576A-T106-R	
Q208	8-729-427-83	TRANSISTOR XP6501-TXE	
Q209	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q210	8-729-026-52	TRANSISTOR 2SA1576A-T106-R	
Q211	8-729-026-52	TRANSISTOR 2SA1576A-T106-R	
Q212	8-729-026-52	TRANSISTOR 2SA1576A-T106-R	
Q213	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q214	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q215	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q216	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q217	8-729-026-52	TRANSISTOR 2SA1576A-T106-R	
Q218	8-729-026-52	TRANSISTOR 2SA1576A-T106-R	
Q221	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q222	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q223	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q224	8-729-427-83	TRANSISTOR XP6501-TXE	
Q225	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q226	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q227	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q228	8-729-427-83	TRANSISTOR XP6501-TXE	
Q229	8-729-026-52	TRANSISTOR 2SA1576A-T106-R	
Q231	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q232	8-729-427-83	TRANSISTOR XP6501-TXE	
Q233	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q403	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q404	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q405	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q406	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q407	8-729-427-83	TRANSISTOR XP6501-TXE	
Q408	8-729-402-42	TRANSISTOR UN5213-TX	
Q409	8-729-015-76	TRANSISTOR UN5211-TX	
Q410	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q411	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q412	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q413	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q414	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q415	8-729-427-83	TRANSISTOR XP6501-TXE	
Q416	8-729-402-84	TRANSISTOR XN4601-TW	
Q417	8-729-427-83	TRANSISTOR XP6501-TXE	
Q419	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q420	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q601	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q602	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q604	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q605	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q606	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q607	8-729-026-52	TRANSISTOR 2SA1576A-T106-R	
Q613	8-729-026-52	TRANSISTOR 2SA1576A-T106-R	
Q651	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q653	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q655	8-729-026-52	TRANSISTOR 2SA1576A-T106-R	
Q656	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q658	8-729-026-52	TRANSISTOR 2SA1576A-T106-R	
Q701	8-729-015-76	TRANSISTOR UN5211-TX	
Q702	8-729-015-74	TRANSISTOR UN5111-TX	

Ref. No.	Part No.	Description			Remark
Q703	8-729-905-35	TRANSISTOR	2SC4081T106R		
Q704	8-729-905-35	TRANSISTOR	2SC4081T106R		
Q705	8-729-402-42	TRANSISTOR	UN5213-TX		
Q706	8-729-403-35	TRANSISTOR	UN5113-TX		
Q707	8-729-015-76	TRANSISTOR	UN5211-TX		
Q708	8-729-028-70	TRANSISTOR	UN2225T- (TX)		
Q709	8-729-028-70	TRANSISTOR	UN2225T- (TX)		
Q710	8-729-028-70	TRANSISTOR	UN2225T- (TX)		
Q711	8-729-028-70	TRANSISTOR	UN2225T- (TX)		
Q712	8-729-028-70	TRANSISTOR	UN2225T- (TX)		
Q713	8-729-028-70	TRANSISTOR	UN2225T- (TX)		
Q851	8-729-905-35	TRANSISTOR	2SC4081T106R		
Q852	8-729-402-42	TRANSISTOR	UN5213-TX		
Q853	8-729-014-91	TRANSISTOR	2SD2185S-TX		
Q854	8-729-905-35	TRANSISTOR	2SC4081T106R		
Q855	8-729-905-35	TRANSISTOR	2SC4081T106R		
Q856	8-729-403-35	TRANSISTOR	UN5113-TX		
Q857	8-729-402-42	TRANSISTOR	UN5213-TX		
		< RESISTOR >			
R051	1-216-833-91	RES, CHIP	10K	5% 1/16W	
R052	1-216-833-91	RES, CHIP	10K	5% 1/16W	
R053	1-216-833-91	RES, CHIP	10K	5% 1/16W	
R054	1-216-833-91	RES, CHIP	10K	5% 1/16W	
R056	1-216-864-11	METAL CHIP	0	5% 1/16W	
R059	1-216-823-11	METAL CHIP	1.5K	5% 1/16W	
R060	1-216-801-11	METAL CHIP	22	5% 1/16W	
R061	1-216-857-11	METAL CHIP	1M	5% 1/16W	
R062	1-216-801-11	METAL CHIP	22	5% 1/16W	
R063	1-216-801-11	METAL CHIP	22	5% 1/16W	
R064	1-216-833-91	RES, CHIP	10K	5% 1/16W	
R065	1-216-864-11	METAL CHIP	0	5% 1/16W	(DSR-20MDP)
R066	1-216-801-11	METAL CHIP	22	5% 1/16W	
R067	1-216-857-11	METAL CHIP	1M	5% 1/16W	
R068	1-216-801-11	METAL CHIP	22	5% 1/16W	
R069	1-216-830-11	METAL CHIP	5.6K	5% 1/16W	
R070	1-216-833-91	RES, CHIP	10K	5% 1/16W	
R071	1-216-833-91	RES, CHIP	10K	5% 1/16W	
R101	1-216-797-11	METAL CHIP	10	5% 1/16W	
R102	1-216-797-11	METAL CHIP	10	5% 1/16W	
R103	1-216-833-91	RES, CHIP	10K	5% 1/16W	
R104	1-216-833-91	RES, CHIP	10K	5% 1/16W	
R105	1-216-797-11	METAL CHIP	10	5% 1/16W	
R106	1-216-797-11	METAL CHIP	10	5% 1/16W	
R107	1-216-797-11	METAL CHIP	10	5% 1/16W	
R108	1-216-833-91	RES, CHIP	10K	5% 1/16W	
R109	1-216-797-11	METAL CHIP	10	5% 1/16W	
R110	1-216-797-11	METAL CHIP	10	5% 1/16W	
R112	1-216-833-91	RES, CHIP	10K	5% 1/16W	
R113	1-216-864-11	METAL CHIP	0	5% 1/16W	
R114	1-216-809-11	METAL CHIP	100	5% 1/16W	
R115	1-216-809-11	METAL CHIP	100	5% 1/16W	
R117	1-216-809-11	METAL CHIP	100	5% 1/16W	
R118	1-216-797-11	METAL CHIP	10	5% 1/16W	
R119	1-216-797-11	METAL CHIP	10	5% 1/16W	(DSR-20MDP)
R120	1-216-809-11	METAL CHIP	100	5% 1/16W	
R121	1-216-809-11	METAL CHIP	100	5% 1/16W	
R122	1-216-809-11	METAL CHIP	100	5% 1/16W	
R123	1-216-809-11	METAL CHIP	100	5% 1/16W	

Ref. No.	Part No.	Description			Remark
R124	1-216-809-11	METAL CHIP	100	5% 1/16W	
R125	1-216-809-11	METAL CHIP	100	5% 1/16W	
R126	1-216-809-11	METAL CHIP	100	5% 1/16W	
R127	1-216-797-11	METAL CHIP	10	5% 1/16W	
R128	1-216-809-11	METAL CHIP	100	5% 1/16W	
R129	1-216-797-11	METAL CHIP	10	5% 1/16W	
R130	1-216-809-11	METAL CHIP	100	5% 1/16W	
R131	1-216-809-11	METAL CHIP	100	5% 1/16W	
R132	1-216-797-11	METAL CHIP	10	5% 1/16W	
R133	1-216-809-11	METAL CHIP	100	5% 1/16W	
R134	1-216-797-11	METAL CHIP	10	5% 1/16W	
R135	1-216-809-11	METAL CHIP	100	5% 1/16W	
R136	1-216-809-11	METAL CHIP	100	5% 1/16W	
R137	1-216-809-11	METAL CHIP	100	5% 1/16W	
R138	1-216-809-11	METAL CHIP	100	5% 1/16W	
R139	1-216-809-11	METAL CHIP	100	5% 1/16W	
R140	1-216-809-11	METAL CHIP	100	5% 1/16W	
R141	1-216-809-11	METAL CHIP	100	5% 1/16W	
R142	1-216-809-11	METAL CHIP	100	5% 1/16W	
R143	1-216-809-11	METAL CHIP	100	5% 1/16W	
R144	1-216-809-11	METAL CHIP	100	5% 1/16W	
R145	1-216-809-11	METAL CHIP	100	5% 1/16W	
R146	1-216-797-11	METAL CHIP	10	5% 1/16W	
R147	1-216-797-11	METAL CHIP	10	5% 1/16W	
R148	1-216-797-11	METAL CHIP	10	5% 1/16W	
R152	1-216-833-91	RES, CHIP	10K	5% 1/16W	
R153	1-216-833-91	RES, CHIP	10K	5% 1/16W	
R154	1-216-833-91	RES, CHIP	10K	5% 1/16W	
R155	1-216-821-11	METAL CHIP	1K	5% 1/16W	
R156	1-216-809-11	METAL CHIP	100	5% 1/16W	
R157	1-216-809-11	METAL CHIP	100	5% 1/16W	
R158	1-216-809-11	METAL CHIP	100	5% 1/16W	
R159	1-216-809-11	METAL CHIP	100	5% 1/16W	
R160	1-216-809-11	METAL CHIP	100	5% 1/16W	
R161	1-216-809-11	METAL CHIP	100	5% 1/16W	
R162	1-216-809-11	METAL CHIP	100	5% 1/16W	
R163	1-216-809-11	METAL CHIP	100	5% 1/16W	
R164	1-216-809-11	METAL CHIP	100	5% 1/16W	
R165	1-216-809-11	METAL CHIP	100	5% 1/16W	
R166	1-216-833-91	RES, CHIP	10K	5% 1/16W	
R167	1-216-809-11	METAL CHIP	100	5% 1/16W	
R168	1-216-809-11	METAL CHIP	100	5% 1/16W	
R169	1-216-809-11	METAL CHIP	100	5% 1/16W	
R170	1-216-833-91	RES, CHIP	10K	5% 1/16W	
R171	1-216-809-11	METAL CHIP	100	5% 1/16W	
R172	1-216-809-11	METAL CHIP	100	5% 1/16W	
R173	1-216-809-11	METAL CHIP	100	5% 1/16W	
R174	1-216-809-11	METAL CHIP	100	5% 1/16W	
R175	1-216-809-11	METAL CHIP	100	5% 1/16W	
R176	1-216-809-11	METAL CHIP	100	5% 1/16W	
R177	1-216-809-11	METAL CHIP	100	5% 1/16W	
R178	1-216-809-11	METAL CHIP	100	5% 1/16W	
R179	1-216-809-11	METAL CHIP	100	5% 1/16W	
R180	1-216-809-11	METAL CHIP	100	5% 1/16W	
R181	1-216-809-11	METAL CHIP	100	5% 1/16W	
R201	1-216-805-11	METAL CHIP	47	5% 1/16W	
R202	1-216-821-11	METAL CHIP	1K	5% 1/16W	
R203	1-216-810-11	METAL CHIP	120	5% 1/16W	
R204	1-216-821-11	METAL CHIP	1K	5% 1/16W	
R205	1-216-837-11	METAL CHIP	22K	5% 1/16W	

Ref. No.	Part No.	Description			Remark
R206	1-216-833-91	RES, CHIP	10K	5%	1/16W
R207	1-216-821-11	METAL CHIP	1K	5%	1/16W
R208	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R209	1-216-821-11	METAL CHIP	1K	5%	1/16W
R210	1-216-821-11	METAL CHIP	1K	5%	1/16W
R211	1-216-837-11	METAL CHIP	22K	5%	1/16W
R212	1-216-834-11	METAL CHIP	12K	5%	1/16W
R213	1-216-821-11	METAL CHIP	1K	5%	1/16W
R214	1-216-817-11	METAL CHIP	470	5%	1/16W
R215	1-216-816-11	METAL CHIP	390	5%	1/16W
R216	1-216-821-11	METAL CHIP	1K	5%	1/16W
R217	1-216-807-11	METAL CHIP	68	5%	1/16W
R218	1-216-837-11	METAL CHIP	22K	5%	1/16W
R219	1-216-833-91	RES, CHIP	10K	5%	1/16W
R220	1-216-821-11	METAL CHIP	1K	5%	1/16W
R221	1-216-817-11	METAL CHIP	470	5%	1/16W
R222	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R223	1-216-821-11	METAL CHIP	1K	5%	1/16W
R224	1-216-841-11	METAL CHIP	47K	5%	1/16W
R225	1-216-817-11	METAL CHIP	470	5%	1/16W
R226	1-216-809-11	METAL CHIP	100	5%	1/16W
R227	1-216-821-11	METAL CHIP	1K	5%	1/16W
R228	1-216-809-11	METAL CHIP	100	5%	1/16W
R229	1-216-821-11	METAL CHIP	1K	5%	1/16W
R231	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R232	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R233	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R234	1-216-809-11	METAL CHIP	100	5%	1/16W
R235	1-216-845-11	METAL CHIP	100K	5%	1/16W
R236	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R237	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R241	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-20MDP)
R242	1-216-833-91	RES, CHIP	10K	5%	1/16W
R244	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R246	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R248	1-216-813-11	METAL CHIP	220	5%	1/16W
R249	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-20MD)
R250	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R251	1-216-813-11	METAL CHIP	220	5%	1/16W
R252	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R253	1-216-818-11	METAL CHIP	560	5%	1/16W
R254	1-218-863-11	METAL CHIP	4.7K	0.5%	1/16W
R255	1-218-707-11	RES, CHIP	4.3K	5%	1/16W
R256	1-218-269-11	RES, CHIP	360	5%	1/16W
R257	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-20MD)
R258	1-218-823-11	METAL CHIP	100	0.5%	1/16W
R259	1-216-864-11	METAL CHIP	0	5%	1/16W
R260	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R261	1-216-849-11	METAL CHIP	220K	5%	1/16W
R262	1-216-809-11	METAL CHIP	100	5%	1/16W
R263	1-216-821-11	METAL CHIP	1K	5%	1/16W
R264	1-216-818-11	METAL CHIP	560	5%	1/16W
R265	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R266	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R269	1-216-837-11	METAL CHIP	22K	5%	1/16W
R270	1-216-864-11	METAL CHIP	0	5%	1/16W
R271	1-216-837-11	METAL CHIP	22K	5%	1/16W
R272	1-216-821-11	METAL CHIP	1K	5%	1/16W
R273	1-216-819-11	METAL CHIP	680	5%	1/16W
R274	1-216-818-11	METAL CHIP	560	5%	1/16W
R275	1-216-809-11	METAL CHIP	100	5%	1/16W
R276	1-216-821-11	METAL CHIP	1K	5%	1/16W
R277	1-216-864-11	METAL CHIP	0	5%	1/16W
R279	1-216-821-11	METAL CHIP	1K	5%	1/16W
R280	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R281	1-216-817-11	METAL CHIP	470	5%	1/16W
R282	1-218-899-11	METAL CHIP	150K	0.5%	1/16W
R283	1-218-871-11	METAL CHIP	10K	0.5%	1/16W
R284	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R285	1-216-864-11	METAL CHIP	0	5%	1/16W
R287	1-218-879-11	METAL CHIP	22K	0.5%	1/16W
R288	1-216-844-11	METAL CHIP	82K	5%	1/16W
R289	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R290	1-218-869-11	METAL CHIP	8.2K	0.5%	1/16W
R291	1-216-817-11	METAL CHIP	470	5%	1/16W
R292	1-218-871-11	METAL CHIP	10K	0.5%	1/16W
R293	1-216-833-91	RES, CHIP	10K	5%	1/16W (DSR-20MD)
R294	1-216-821-11	METAL CHIP	1K	5%	1/16W
R295	1-216-853-11	METAL CHIP	470K	5%	1/16W
R296	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R297	1-216-819-11	METAL CHIP	680	5%	1/16W
R298	1-216-818-11	METAL CHIP	560	5%	1/16W
R299	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R300	1-216-805-11	METAL CHIP	47	5%	1/16W
R301	1-216-815-11	METAL CHIP	330	5%	1/16W
R302	1-216-837-11	METAL CHIP	22K	5%	1/16W
R303	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-20MDP)
R304	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-20MD)
R305	1-216-819-11	METAL CHIP	680	5%	1/16W
R306	1-216-811-11	METAL CHIP	150	5%	1/16W
R308	1-216-816-11	METAL CHIP	390	5%	1/16W
R309	1-216-845-11	METAL CHIP	100K	5%	1/16W
R310	1-216-837-11	METAL CHIP	22K	5%	1/16W
R311	1-216-837-11	METAL CHIP	22K	5%	1/16W
R312	1-216-818-11	METAL CHIP	560	5%	1/16W
R313	1-216-821-11	METAL CHIP	1K	5%	1/16W
R314	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R315	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R316	1-216-821-11	METAL CHIP	1K	5%	1/16W
R317	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R318	1-216-837-11	METAL CHIP	22K	5%	1/16W
R319	1-216-840-11	METAL CHIP	39K	5%	1/16W (DSR-20MDP)
R320	1-216-837-11	METAL CHIP	22K	5%	1/16W
R321	1-216-839-11	METAL CHIP	33K	5%	1/16W
R323	1-216-818-11	METAL CHIP	560	5%	1/16W
R324	1-216-809-11	METAL CHIP	100	5%	1/16W
R325	1-216-816-11	METAL CHIP	390	5%	1/16W
R326	1-216-821-11	METAL CHIP	1K	5%	1/16W
R327	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R328	1-216-839-11	METAL CHIP	33K	5%	1/16W (DSR-20MDP)
R329	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R330	1-218-869-11	METAL CHIP	8.2K	0.5%	1/16W
R401	1-216-821-11	METAL CHIP	1K	5%	1/16W

VA-102

Ref. No.	Part No.	Description			Remark
R402	1-216-864-11	METAL CHIP	0	5%	1/16W
R404	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-20MDP)
R406	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-20MD)
R407	1-216-835-11	METAL CHIP	15K	5%	1/16W
R408	1-216-833-91	RES, CHIP	10K	5%	1/16W
R410	1-216-817-11	METAL CHIP	470	5%	1/16W
R411	1-216-864-11	METAL CHIP	0	5%	1/16W
R412	1-216-837-11	METAL CHIP	22K	5%	1/16W
R413	1-216-817-11	METAL CHIP	470	5%	1/16W
R414	1-216-819-11	METAL CHIP	680	5%	1/16W
R415	1-216-864-11	METAL CHIP	0	5%	1/16W
R416	1-216-835-11	METAL CHIP	15K	5%	1/16W
R417	1-216-833-91	RES, CHIP	10K	5%	1/16W
R418	1-216-835-11	METAL CHIP	15K	5%	1/16W
R419	1-216-833-91	RES, CHIP	10K	5%	1/16W
R420	1-216-813-11	METAL CHIP	220	5%	1/16W
R421	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R422	1-216-847-11	METAL CHIP	150K	5%	1/16W
R423	1-216-864-11	METAL CHIP	0	5%	1/16W
R424	1-216-821-11	METAL CHIP	1K	5%	1/16W
R425	1-216-817-11	METAL CHIP	470	5%	1/16W
R426	1-216-818-11	METAL CHIP	560	5%	1/16W
R427	1-216-821-11	METAL CHIP	1K	5%	1/16W (DSR-20MDP)
R428	1-216-821-11	METAL CHIP	1K	5%	1/16W
R429	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R430	1-216-833-91	RES, CHIP	10K	5%	1/16W
R431	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R433	1-216-833-91	RES, CHIP	10K	5%	1/16W
R434	1-216-821-11	METAL CHIP	1K	5%	1/16W (DSR-20MDP)
R436	1-216-817-11	METAL CHIP	470	5%	1/16W
R437	1-216-821-11	METAL CHIP	1K	5%	1/16W
R438	1-216-864-11	METAL CHIP	0	5%	1/16W
R439	1-216-837-11	METAL CHIP	22K	5%	1/16W
R440	1-216-821-11	METAL CHIP	1K	5%	1/16W
R441	1-216-819-11	METAL CHIP	680	5%	1/16W
R442	1-216-837-11	METAL CHIP	22K	5%	1/16W
R443	1-216-819-11	METAL CHIP	680	5%	1/16W
R444	1-216-837-11	METAL CHIP	22K	5%	1/16W
R445	1-218-838-11	METAL CHIP	430	0.5%	1/16W
R446	1-216-833-91	RES, CHIP	10K	5%	1/16W
R447	1-216-817-11	METAL CHIP	470	5%	1/16W
R449	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-20MD)
R450	1-218-839-11	METAL CHIP	470	0.5%	1/16W
R451	1-218-846-11	METAL CHIP	910	0.5%	1/16W
R452	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-20MDP)
R453	1-216-819-11	METAL CHIP	680	5%	1/16W
R454	1-216-864-11	METAL CHIP	0	5%	1/16W
R458	1-216-864-11	METAL CHIP	0	5%	1/16W
R459	1-216-864-11	METAL CHIP	0	5%	1/16W
R460	1-216-864-11	METAL CHIP	0	5%	1/16W
R461	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-20MDP)
R462	1-216-842-11	METAL CHIP	56K	5%	1/16W
R463	1-216-833-91	RES, CHIP	10K	5%	1/16W
R464	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-20MD)
R465	1-218-847-11	METAL CHIP	1K	0.5%	1/16W
R466	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R467	1-216-841-11	METAL CHIP	47K	5%	1/16W
R468	1-216-841-11	METAL CHIP	47K	5%	1/16W
R469	1-216-839-11	METAL CHIP	33K	5%	1/16W
R470	1-216-819-11	METAL CHIP	680	5%	1/16W
R471	1-216-841-11	METAL CHIP	47K	5%	1/16W
R472	1-216-864-11	METAL CHIP	0	5%	1/16W
R473	1-216-821-11	METAL CHIP	1K	5%	1/16W
R474	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R477	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R480	1-216-864-11	METAL CHIP	0	5%	1/16W
R481	1-216-864-11	METAL CHIP	0	5%	1/16W
R482	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-20MDP)
R484	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-20MD)
R485	1-216-864-11	METAL CHIP	0	5%	1/16W
R486	1-216-821-11	METAL CHIP	1K	5%	1/16W
R487	1-216-821-11	METAL CHIP	1K	5%	1/16W
R488	1-216-833-91	RES, CHIP	10K	5%	1/16W
R489	1-216-821-11	METAL CHIP	1K	5%	1/16W
R492	1-216-821-11	METAL CHIP	1K	5%	1/16W
R493	1-216-833-91	RES, CHIP	10K	5%	1/16W
R494	1-216-022-00	METAL CHIP	75	5%	1/10W
R495	1-216-833-91	RES, CHIP	10K	5%	1/16W
R496	1-216-841-11	METAL CHIP	47K	5%	1/16W
R497	1-216-022-00	METAL CHIP	75	5%	1/10W
R498	1-216-013-00	METAL CHIP	33	5%	1/10W
R499	1-216-833-91	RES, CHIP	10K	5%	1/16W
R500	1-216-015-00	METAL CHIP	39	5%	1/10W
R501	1-216-817-11	METAL CHIP	470	5%	1/16W
R502	1-216-845-11	METAL CHIP	100K	5%	1/16W
R503	1-216-821-11	METAL CHIP	1K	5%	1/16W
R504	1-216-864-11	METAL CHIP	0	5%	1/16W
R505	1-216-845-11	METAL CHIP	100K	5%	1/16W
R506	1-216-864-11	METAL CHIP	0	5%	1/16W
R507	1-216-845-11	METAL CHIP	100K	5%	1/16W
R508	1-216-845-11	METAL CHIP	100K	5%	1/16W
R509	1-216-845-11	METAL CHIP	100K	5%	1/16W
R510	1-216-845-11	METAL CHIP	100K	5%	1/16W
R511	1-216-845-11	METAL CHIP	100K	5%	1/16W
R512	1-216-864-11	METAL CHIP	0	5%	1/16W
R513	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R514	1-216-849-11	METAL CHIP	220K	5%	1/16W
R517	1-216-864-11	METAL CHIP	0	5%	1/16W
R519	1-216-864-11	METAL CHIP	0	5%	1/16W
R520	1-216-833-91	RES, CHIP	10K	5%	1/16W
R521	1-216-864-11	METAL CHIP	0	5%	1/16W
R524	1-216-821-11	METAL CHIP	1K	5%	1/16W
R525	1-216-833-91	RES, CHIP	10K	5%	1/16W
R526	1-216-833-91	RES, CHIP	10K	5%	1/16W
R527	1-216-821-11	METAL CHIP	1K	5%	1/16W (DSR-20MDP)
R528	1-216-864-11	METAL CHIP	0	5%	1/16W
R529	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-20MD)
R531	1-216-864-11	METAL CHIP	0	5%	1/16W
R533	1-216-864-11	METAL CHIP	0	5%	1/16W
R534	1-216-864-11	METAL CHIP	0	5%	1/16W
R535	1-216-864-11	METAL CHIP	0	5%	1/16W

Ref. No.	Part No.	Description			Remark
R536	1-216-864-11	METAL CHIP	0	5%	1/16W
R537	1-216-864-11	METAL CHIP	0	5%	1/16W
R539	1-216-821-11	METAL CHIP	1K	5%	1/16W
R540	1-216-864-11	METAL CHIP	0	5%	1/16W
R541	1-216-864-11	METAL CHIP	0	5%	1/16W
R542	1-216-864-11	METAL CHIP	0	5%	1/16W
R543	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-20MD)
R543	1-211-983-11	METAL CHIP	39	0.5%	1/16W (DSR-20MDP)
R601	1-216-841-11	METAL CHIP	47K	5%	1/16W
R602	1-216-841-11	METAL CHIP	47K	5%	1/16W
R603	1-216-813-11	METAL CHIP	220	5%	1/16W
R604	1-216-849-11	METAL CHIP	220K	5%	1/16W
R605	1-216-837-11	METAL CHIP	22K	5%	1/16W
R606	1-216-839-11	METAL CHIP	33K	5%	1/16W
R610	1-216-817-11	METAL CHIP	470	5%	1/16W
R611	1-216-816-11	METAL CHIP	390	5%	1/16W
R612	1-216-821-11	METAL CHIP	1K	5%	1/16W
R613	1-216-817-11	METAL CHIP	470	5%	1/16W
R615	1-216-864-11	METAL CHIP	0	5%	1/16W
R616	1-216-821-11	METAL CHIP	1K	5%	1/16W
R619	1-216-815-11	METAL CHIP	330	5%	1/16W
R621	1-216-821-11	METAL CHIP	1K	5%	1/16W
R622	1-216-833-91	RES, CHIP	10K	5%	1/16W
R623	1-216-853-11	METAL CHIP	470K	5%	1/16W
R629	1-216-833-91	RES, CHIP	10K	5%	1/16W
R630	1-216-836-11	METAL CHIP	18K	5%	1/16W
R631	1-216-837-11	METAL CHIP	22K	5%	1/16W
R635	1-216-864-11	METAL CHIP	0	5%	1/16W
R636	1-216-833-91	RES, CHIP	10K	5%	1/16W
R639	1-216-821-11	METAL CHIP	1K	5%	1/16W
R640	1-216-841-11	METAL CHIP	47K	5%	1/16W
R641	1-216-841-11	METAL CHIP	47K	5%	1/16W
R642	1-216-821-11	METAL CHIP	1K	5%	1/16W
R643	1-216-845-11	METAL CHIP	100K	5%	1/16W
R652	1-216-819-11	METAL CHIP	680	5%	1/16W
R653	1-216-864-11	METAL CHIP	0	5%	1/16W
R654	1-216-864-11	METAL CHIP	0	5%	1/16W
R657	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R658	1-216-834-11	METAL CHIP	12K	5%	1/16W
R659	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R660	1-216-821-11	METAL CHIP	1K	5%	1/16W
R662	1-216-821-11	METAL CHIP	1K	5%	1/16W
R665	1-216-817-11	METAL CHIP	470	5%	1/16W
R666	1-216-864-11	METAL CHIP	0	5%	1/16W
R667	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R668	1-216-847-11	METAL CHIP	150K	5%	1/16W
R669	1-216-818-11	METAL CHIP	560	5%	1/16W
R670	1-216-817-11	METAL CHIP	470	5%	1/16W
R676	1-216-025-91	RES, CHIP	100	5%	1/10W
R677	1-216-025-91	RES, CHIP	100	5%	1/10W
R678	1-216-021-00	METAL CHIP	68	5%	1/10W
R679	1-216-864-11	METAL CHIP	0	5%	1/16W
R680	1-216-864-11	METAL CHIP	0	5%	1/16W
R681	1-216-864-11	METAL CHIP	0	5%	1/16W
R682	1-216-864-11	METAL CHIP	0	5%	1/16W
R683	1-216-864-11	METAL CHIP	0	5%	1/16W
R684	1-216-864-11	METAL CHIP	0	5%	1/16W
R701	1-216-833-91	RES, CHIP	10K	5%	1/16W

Ref. No.	Part No.	Description			Remark
R702	1-216-833-91	RES, CHIP	10K	5%	1/16W
R703	1-216-833-91	RES, CHIP	10K	5%	1/16W
R704	1-216-833-91	RES, CHIP	10K	5%	1/16W
R705	1-216-833-91	RES, CHIP	10K	5%	1/16W
R706	1-216-833-91	RES, CHIP	10K	5%	1/16W
R707	1-216-833-91	RES, CHIP	10K	5%	1/16W
R708	1-216-833-91	RES, CHIP	10K	5%	1/16W
R709	1-216-849-11	METAL CHIP	220K	5%	1/16W
R710	1-216-849-11	METAL CHIP	220K	5%	1/16W
R711	1-216-839-11	METAL CHIP	33K	5%	1/16W
R712	1-216-839-11	METAL CHIP	33K	5%	1/16W
R713	1-216-835-11	METAL CHIP	15K	5%	1/16W
R714	1-216-835-11	METAL CHIP	15K	5%	1/16W
R715	1-216-839-11	METAL CHIP	33K	5%	1/16W
R716	1-216-839-11	METAL CHIP	33K	5%	1/16W
R717	1-216-835-11	METAL CHIP	15K	5%	1/16W
R718	1-216-835-11	METAL CHIP	15K	5%	1/16W
R719	1-216-864-11	METAL CHIP	0	5%	1/16W
R721	1-216-809-11	METAL CHIP	100	5%	1/16W
R722	1-216-841-11	METAL CHIP	47K	5%	1/16W
R723	1-216-837-11	METAL CHIP	22K	5%	1/16W
R724	1-216-864-11	METAL CHIP	0	5%	1/16W
R726	1-216-809-11	METAL CHIP	100	5%	1/16W
R727	1-216-845-11	METAL CHIP	100K	5%	1/16W
R728	1-216-845-11	METAL CHIP	100K	5%	1/16W
R729	1-216-845-11	METAL CHIP	100K	5%	1/16W
R730	1-216-845-11	METAL CHIP	100K	5%	1/16W
R731	1-216-837-11	METAL CHIP	22K	5%	1/16W
R732	1-216-833-91	RES, CHIP	10K	5%	1/16W
R733	1-216-833-91	RES, CHIP	10K	5%	1/16W
R734	1-216-841-11	METAL CHIP	47K	5%	1/16W
R735	1-216-833-91	RES, CHIP	10K	5%	1/16W
R736	1-216-833-91	RES, CHIP	10K	5%	1/16W
R737	1-216-833-91	RES, CHIP	10K	5%	1/16W
R738	1-216-833-91	RES, CHIP	10K	5%	1/16W
R739	1-216-819-11	METAL CHIP	680	5%	1/16W
R740	1-216-819-11	METAL CHIP	680	5%	1/16W
R741	1-216-833-91	RES, CHIP	10K	5%	1/16W
R742	1-216-833-91	RES, CHIP	10K	5%	1/16W
R743	1-216-841-11	METAL CHIP	47K	5%	1/16W
R744	1-216-833-91	RES, CHIP	10K	5%	1/16W
R745	1-216-833-91	RES, CHIP	10K	5%	1/16W
R746	1-216-841-11	METAL CHIP	47K	5%	1/16W
R747	1-216-833-91	RES, CHIP	10K	5%	1/16W
R748	1-216-833-91	RES, CHIP	10K	5%	1/16W
R749	1-216-833-91	RES, CHIP	10K	5%	1/16W
R750	1-216-833-91	RES, CHIP	10K	5%	1/16W
R753	1-218-332-11	RES, CHIP	130K	5%	1/16W
R754	1-218-332-11	RES, CHIP	130K	5%	1/16W
R755	1-216-833-91	RES, CHIP	10K	5%	1/16W
R756	1-218-293-11	RES, CHIP	24K	5%	1/16W
R757	1-218-293-11	RES, CHIP	24K	5%	1/16W
R758	1-216-833-91	RES, CHIP	10K	5%	1/16W
R759	1-216-841-11	METAL CHIP	47K	5%	1/16W
R760	1-218-332-11	RES, CHIP	130K	5%	1/16W
R761	1-218-332-11	RES, CHIP	130K	5%	1/16W
R762	1-216-841-11	METAL CHIP	47K	5%	1/16W
R763	1-216-833-91	RES, CHIP	10K	5%	1/16W
R764	1-216-849-11	METAL CHIP	220K	5%	1/16W
R765	1-216-833-91	RES, CHIP	10K	5%	1/16W

VA-102

Ref. No.	Part No.	Description			Remark
R766	1-218-882-11	METAL CHIP	30K	0.5%	1/16W
R767	1-218-862-11	METAL CHIP	4.3K	0.5%	1/16W
R768	1-216-833-91	RES, CHIP	10K	5%	1/16W
R769	1-216-833-91	RES, CHIP	10K	5%	1/16W
R770	1-216-833-91	RES, CHIP	10K	5%	1/16W
R771	1-216-833-91	RES, CHIP	10K	5%	1/16W
R772	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R773	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R774	1-216-833-91	RES, CHIP	10K	5%	1/16W
R775	1-216-809-11	METAL CHIP	100	5%	1/16W
R776	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R777	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R778	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R779	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R780	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R781	1-216-849-11	METAL CHIP	220K	5%	1/16W
R782	1-216-809-11	METAL CHIP	100	5%	1/16W
R783	1-218-290-11	RES, CHIP	6.2K	5%	1/16W
R784	1-218-290-11	RES, CHIP	6.2K	5%	1/16W
R785	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R786	1-218-882-11	METAL CHIP	30K	0.5%	1/16W
R787	1-218-862-11	METAL CHIP	4.3K	0.5%	1/16W
R788	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R789	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R790	1-216-809-11	METAL CHIP	100	5%	1/16W
R791	1-216-809-11	METAL CHIP	100	5%	1/16W
R792	1-216-840-11	METAL CHIP	39K	5%	1/16W
R793	1-216-809-11	METAL CHIP	100	5%	1/16W
R794	1-216-833-91	RES, CHIP	10K	5%	1/16W
R795	1-216-840-11	METAL CHIP	39K	5%	1/16W
R796	1-216-809-11	METAL CHIP	100	5%	1/16W
R797	1-216-821-11	METAL CHIP	1K	5%	1/16W
R798	1-216-821-11	METAL CHIP	1K	5%	1/16W
R799	1-216-821-11	METAL CHIP	1K	5%	1/16W
R800	1-216-813-11	METAL CHIP	220	5%	1/16W
R801	1-216-813-11	METAL CHIP	220	5%	1/16W
R802	1-216-813-11	METAL CHIP	220	5%	1/16W
R803	1-216-813-11	METAL CHIP	220	5%	1/16W
R804	1-216-840-11	METAL CHIP	39K	5%	1/16W
R805	1-216-840-11	METAL CHIP	39K	5%	1/16W
R807	1-216-864-11	METAL CHIP	0	5%	1/16W
R808	1-216-864-11	METAL CHIP	0	5%	1/16W
R809	1-216-833-91	RES, CHIP	10K	5%	1/16W
R810	1-216-833-91	RES, CHIP	10K	5%	1/16W
R811	1-216-833-91	RES, CHIP	10K	5%	1/16W
R812	1-216-833-91	RES, CHIP	10K	5%	1/16W
R813	1-216-833-91	RES, CHIP	10K	5%	1/16W
R814	1-216-833-91	RES, CHIP	10K	5%	1/16W
R815	1-216-864-11	METAL CHIP	0	5%	1/16W
R832	1-216-801-11	METAL CHIP	22	5%	1/16W
R855	1-216-841-11	METAL CHIP	47K	5%	1/16W
R856	1-216-817-11	METAL CHIP	470	5%	1/16W
R857	1-216-841-11	METAL CHIP	47K	5%	1/16W
R858	1-216-833-91	RES, CHIP	10K	5%	1/16W
R859	1-216-833-91	RES, CHIP	10K	5%	1/16W
R860	1-216-833-91	RES, CHIP	10K	5%	1/16W
R861	1-216-833-91	RES, CHIP	10K	5%	1/16W
R862	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R863	1-216-817-11	METAL CHIP	470	5%	1/16W
R864	1-216-817-11	METAL CHIP	470	5%	1/16W

Ref. No.	Part No.	Description			Remark
R865	1-216-821-11	METAL CHIP	1K	5%	1/16W
R866	1-216-864-11	METAL CHIP	0	5%	1/16W
R867	1-216-817-11	METAL CHIP	470	5%	1/16W
R868	1-216-817-11	METAL CHIP	470	5%	1/16W
R869	1-216-817-11	METAL CHIP	470	5%	1/16W
R870	1-216-817-11	METAL CHIP	470	5%	1/16W
R871	1-216-817-11	METAL CHIP	470	5%	1/16W
R872	1-216-817-11	METAL CHIP	470	5%	1/16W
R873	1-216-817-11	METAL CHIP	470	5%	1/16W
R874	1-216-817-11	METAL CHIP	470	5%	1/16W
R875	1-216-817-11	METAL CHIP	470	5%	1/16W
R876	1-216-817-11	METAL CHIP	470	5%	1/16W
R877	1-216-817-11	METAL CHIP	470	5%	1/16W
R878	1-216-817-11	METAL CHIP	470	5%	1/16W
R879	1-216-817-11	METAL CHIP	470	5%	1/16W
R880	1-216-817-11	METAL CHIP	470	5%	1/16W
R881	1-216-817-11	METAL CHIP	470	5%	1/16W
R882	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R883	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R884	1-216-833-91	RES, CHIP	10K	5%	1/16W
R885	1-216-817-11	METAL CHIP	470	5%	1/16W
R886	1-216-833-91	RES, CHIP	10K	5%	1/16W
R887	1-216-817-11	METAL CHIP	470	5%	1/16W
R888	1-216-864-11	METAL CHIP	0	5%	1/16W
R889	1-216-817-11	METAL CHIP	470	5%	1/16W
R890	1-216-864-11	METAL CHIP	0	5%	1/16W
R891	1-216-817-11	METAL CHIP	470	5%	1/16W
R892	1-216-833-91	RES, CHIP	10K	5%	1/16W
R893	1-216-864-11	METAL CHIP	0	5%	1/16W
R894	1-216-833-91	RES, CHIP	10K	5%	1/16W
R895	1-216-864-11	METAL CHIP	0	5%	1/16W
R896	1-216-817-11	METAL CHIP	470	5%	1/16W
R897	1-216-833-91	RES, CHIP	10K	5%	1/16W
R898	1-216-864-11	METAL CHIP	0	5%	1/16W
R899	1-216-817-11	METAL CHIP	470	5%	1/16W
R900	1-216-833-91	RES, CHIP	10K	5%	1/16W
R901	1-216-833-91	RES, CHIP	10K	5%	1/16W
R902	1-216-864-11	METAL CHIP	0	5%	1/16W
R903	1-216-817-11	METAL CHIP	470	5%	1/16W
R904	1-216-833-91	RES, CHIP	10K	5%	1/16W
R905	1-216-833-91	RES, CHIP	10K	5%	1/16W
R906	1-216-864-11	METAL CHIP	0	5%	1/16W
R907	1-216-833-91	RES, CHIP	10K	5%	1/16W
R908	1-216-864-11	METAL CHIP	0	5%	1/16W
R909	1-216-817-11	METAL CHIP	470	5%	1/16W
R910	1-216-817-11	METAL CHIP	470	5%	1/16W
R911	1-216-833-91	RES, CHIP	10K	5%	1/16W
R912	1-216-817-11	METAL CHIP	470	5%	1/16W
R913	1-216-833-91	RES, CHIP	10K	5%	1/16W
R914	1-216-841-11	METAL CHIP	47K	5%	1/16W
R915	1-216-817-11	METAL CHIP	470	5%	1/16W
R916	1-216-833-91	RES, CHIP	10K	5%	1/16W
R917	1-216-817-11	METAL CHIP	470	5%	1/16W
R918	1-216-833-91	RES, CHIP	10K	5%	1/16W
R919	1-216-845-11	METAL CHIP	100K	5%	1/16W
R920	1-216-841-11	METAL CHIP	47K	5%	1/16W
R921	1-216-817-11	METAL CHIP	470	5%	1/16W
R922	1-216-833-91	RES, CHIP	10K	5%	1/16W
R923	1-216-841-11	METAL CHIP	47K	5%	1/16W
R924	1-216-833-91	RES, CHIP	10K	5%	1/16W

Ref. No.	Part No.	Description			Remark
R927	1-216-817-11	METAL CHIP	470	5%	1/16W
R928	1-216-864-11	METAL CHIP	0	5%	1/16W
R930	1-216-864-11	METAL CHIP	0	5%	1/16W
R931	1-216-864-11	METAL CHIP	0	5%	1/16W
R932	1-216-864-11	METAL CHIP	0	5%	1/16W
R933	1-216-864-11	METAL CHIP	0	5%	1/16W
R934	1-216-864-11	METAL CHIP	0	5%	1/16W
R935	1-216-864-11	METAL CHIP	0	5%	1/16W
R936	1-216-864-11	METAL CHIP	0	5%	1/16W
R937	1-216-864-11	METAL CHIP	0	5%	1/16W
R938	1-216-864-11	METAL CHIP	0	5%	1/16W
R940	1-216-864-11	METAL CHIP	0	5%	1/16W
R941	1-216-821-11	METAL CHIP	1K	5%	1/16W
R942	1-216-844-11	METAL CHIP	82K	5%	1/16W
R943	1-216-841-11	METAL CHIP	47K	5%	1/16W
R944	1-216-853-11	METAL CHIP	470K	5%	1/16W
R946	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R948	1-216-170-00	RES, CHIP	68	5%	1/8W
R949	1-216-170-00	RES, CHIP	68	5%	1/8W
R950	1-216-833-91	RES, CHIP	10K	5%	1/16W
R951	1-216-037-00	METAL CHIP	330	5%	1/10W
R952	1-216-170-00	RES, CHIP	68	5%	1/8W
R953	1-216-170-00	RES, CHIP	68	5%	1/8W
R955	1-216-170-00	RES, CHIP	68	5%	1/8W
R956	1-216-170-00	RES, CHIP	68	5%	1/8W
R957	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R958	1-216-801-11	METAL CHIP	22	5%	1/16W
R959	1-218-867-11	METAL CHIP	6.8K	0.5%	1/16W
R960	1-218-871-11	METAL CHIP	10K	0.5%	1/16W
R961	1-216-864-11	METAL CHIP	0	5%	1/16W
R962	1-216-817-11	METAL CHIP	470	5%	1/16W
R963	1-216-833-91	RES, CHIP	10K	5%	1/16W
R964	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-20MDP)
R965	1-216-817-11	METAL CHIP	470	5%	1/16W
R966	1-216-864-11	METAL CHIP	0	5%	1/16W
R967	1-216-864-11	METAL CHIP	0	5%	1/16W
R968	1-216-833-91	RES, CHIP	10K	5%	1/16W
R969	1-216-817-11	METAL CHIP	470	5%	1/16W
R970	1-216-864-11	METAL CHIP	0	5%	1/16W
R972	1-216-805-11	METAL CHIP	47	5%	1/16W
R973	1-216-841-11	METAL CHIP	47K	5%	1/16W
R974	1-216-841-11	METAL CHIP	47K	5%	1/16W
R975	1-216-841-11	METAL CHIP	47K	5%	1/16W
R976	1-216-817-11	METAL CHIP	470	5%	1/16W
R977	1-216-154-00	RES, CHIP	15	5%	1/8W
R978	1-216-154-00	RES, CHIP	15	5%	1/8W
R979	1-216-844-11	METAL CHIP	82K	5%	1/16W
R980	1-216-841-11	METAL CHIP	47K	5%	1/16W
R981	1-216-841-11	METAL CHIP	47K	5%	1/16W
R982	1-219-570-11	RES, CHIP	10M	5%	1/16W
R985	1-216-837-11	METAL CHIP	22K	5%	1/16W
R986	1-216-833-91	RES, CHIP	10K	5%	1/16W
R988	1-216-817-11	METAL CHIP	470	5%	1/16W
R989	1-216-864-11	METAL CHIP	0	5%	1/16W
R992	1-216-817-11	METAL CHIP	470	5%	1/16W
R993	1-216-845-11	METAL CHIP	100K	5%	1/16W
R994	1-216-817-11	METAL CHIP	470	5%	1/16W
R995	1-216-833-91	RES, CHIP	10K	5%	1/16W
R996	1-216-817-11	METAL CHIP	470	5%	1/16W

Ref. No.	Part No.	Description			Remark
R997	1-216-817-11	METAL CHIP	470	5%	1/16W
R998	1-216-864-11	METAL CHIP	0	5%	1/16W
R999	1-216-864-11	METAL CHIP	0	5%	1/16W
R1001	1-216-817-11	METAL CHIP	470	5%	1/16W
R1002	1-216-817-11	METAL CHIP	470	5%	1/16W
R1003	1-216-817-11	METAL CHIP	470	5%	1/16W
R1004	1-216-801-11	METAL CHIP	22	5%	1/16W
R1005	1-216-817-11	METAL CHIP	470	5%	1/16W
R1027	1-216-817-11	METAL CHIP	470	5%	1/16W
R1028	1-216-817-11	METAL CHIP	470	5%	1/16W
R1029	1-216-027-00	METAL CHIP	120	5%	1/10W
R1030	1-216-025-91	RES, CHIP	100	5%	1/10W
R1031	1-216-166-00	RES, CHIP	47	5%	1/8W
R1032	1-216-166-00	RES, CHIP	47	5%	1/8W
R1033	1-216-864-11	METAL CHIP	0	5%	1/16W
R1034	1-216-850-11	METAL CHIP	270K	5%	1/16W
R1035	1-216-845-11	METAL CHIP	100K	5%	1/16W
R1036	1-216-829-11	METAL CHIP	4.7K	5%	1/16W

< VARIABLE RESISTOR >

RV201	1-238-853-11	RES, ADJ, CERMET 1K (C GAIN)
RV202	1-238-853-11	RES, ADJ, CERMET 1K (AGC)
RV203	1-238-853-11	RES, ADJ, CERMET 1K (Y GAIN)
RV204	1-238-852-11	RES, ADJ, CERMET 470 (REC CR LEVEL)
RV205	1-238-852-11	RES, ADJ, CERMET 470 (REC Y LEVEL)
RV206	1-238-852-11	RES, ADJ, CERMET 470 (REC CB LEVEL)
RV207	1-238-855-11	RES, ADJ, CERMET 4.7K (DECODER HUE)
RV401	1-238-853-11	RES, ADJ, CERMET 1K (EE Y LEVEL)
RV402	1-238-853-11	RES, ADJ, CERMET 1K (PB BURST LEVEL) (DSR-20MDP)
RV404	1-238-853-11	RES, ADJ, CERMET 1K (EE C LEVEL)
RV406	1-238-853-11	RES, ADJ, CERMET 1K (PB C LEVEL)

< TEST PIN >

TP201	1-535-757-11	CHIP, CHECKER
TP401	1-535-757-11	CHIP, CHECKER
TP859	1-535-757-11	CHIP, CHECKER
TP860	1-535-757-11	CHIP, CHECKER

< VIBRATOR >

X051	1-579-125-11	VIBRATOR, CERAMIC (8MHz)
X052	1-767-879-11	VIBRATOR, CERAMIC (1.2288MHz)
X201	1-579-738-21	VIBRATOR, CRYSTAL (14.318182MHz) (DSR-20MD)
X201	1-579-780-21	VIBRATOR, CRYSTAL (17.734475MHz) (DSR-20MDP)
X401	1-577-165-11	VIBLATOR, CERAMIC (500kHz)
X402	1-567-900-11	OSCILLATOR, CRYSTAL (14.31818MHz) (DSR-20MD)
X402	1-567-733-11	VIBRATOR, CRYSTAL (17.734475MHz) (DSR-20MDP)
X403	1-579-738-21	VIBRATOR, CRYSTAL (14.318182MHz) (DSR-20MD)
X403	1-579-780-21	VIBRATOR, CRYSTAL (17.734475MHz) (DSR-20MDP)
X601	1-579-466-11	VIBRATOR, CRYSTAL (3.579545MHz) (DSR-20MD)
X601	1-579-661-21	OSCILLATOR, CRYSTAL (4.433619MHz) (DSR-20MDP)
X651	1-567-900-11	OSCILLATOR, CRYSTAL (14.31818MHz) (DSR-20MD)

Ref. No.	Part No.	Description	Remark
X651	1-567-733-11	VIBRATOR, CRYSTAL (17.734475MHz)	(DSR-20MDP)
X652	1-577-165-11	VIBLATOR, CERAMIC (500kHz)	
X851	1-767-450-11	VIBRATOR, CERAMIC (20MHz)	
X852	1-760-458-21	VIBRATOR, CRYSTAL (32.768kHz)	
X853	1-760-458-21	VIBRATOR, CRYSTAL (32.768kHz)	
		MISCELLANEOUS	
		**********	
55	1-782-823-11	CABLE, FLAT (FVH-4)	
56	1-782-825-11	CABLE, FLAT (FVF-8)	
57	1-782-824-11	CABLE, FLAT (FVJ-7)	
⚠58	1-468-441-11	POWER BLOCK (U-1/U-2) (DSR-20MD)	
⚠58	1-468-442-11	POWER BLOCK (U-1/U-2) (DSR-20MDP)	
60	1-782-822-11	CABLE, FLAT (FVR-9)	
62	1-782-826-11	CABLE, FLAT (FVR-10)	
65	1-958-841-11	HARNESS (DP-73)	
⚠67	1-958-585-11	HARNESS (AC-227)	
68	1-958-059-11	HARNESS (VP-72)	
101	1-776-148-11	CABLE, FLAT (FCM-11) 15P	
102	1-776-145-11	CABLE, FLAT (FCM-8) 16P	
105	1-764-137-11	CONNECTOR, TRANSLATION 15P	
113	1-958-288-11	HARNESS (CM-130)	
114	1-776-151-11	CABLE, FLAT (FCM-12) 14P	
115	1-776-147-11	CABLE, FLAT (FCM-10) 15P	
116	1-776-146-11	CABLE, FLAT (FCM-9) 9P	
117	1-958-057-11	HARNESS (CP-79)	
118	1-958-061-11	HARNESS (VJ-103)	
119	1-958-058-11	HARNESS (JP-55)	
120	1-958-060-11	HARNESS (VJ-102)	
121	1-543-793-11	FILTER, CLAMP (FERRITE CORE)	
755	A-7044-015-A	DRUM ASSY (DEH-08B-R)	
851	1-658-990-11	FP-406 FLEXIBLE BOARD	
CN901	1-770-312-21	CONNECTOR 4P	
J901	1-564-603-41	CONNECTOR (WITH DC SW) 4P	
M901	X-3944-897-2	FPC ASSY, MOTOR	
M902	8-835-545-01	MOTOR, DC SCD11A/J-N (CAPSTAN)	
M903	X-3945-784-1	MOTOR ASSY, LM (LOADING)	
M904	8-835-537-01	MOTOR, DC SRD11A/J-N (REEL)	
M905	1-698-534-31	FAN, DC	
S001	1-762-550-11	SWITCH, ROTARY (MODE)	
S901	1-762-551-11	SWITCH, PUSH (REC PROOF)	
S902	1-572-288-11	SWITCH, PUSH (C IN SW)	

Ref. No.	Part No.	Description	Remark
		ACCESSORIES	
		**********	
	1-475-693-11	REMOTE COMMANDER (RMT-DS20)	
⚠	1-559-945-11	CORD, POWER (DSR-20MD)	
⚠	1-551-631-22	CORD, POWER (DSR-20MDP)	
	3-867-983-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH)	
	3-867-983-21	MANUAL, INSTRUCTION (GERMAN, ITALIAN)	(DSR-20MDP)
		**********	
		HARDWARE LIST	
		**********	
#1	7-685-533-19	SCREW +BTP 2.6X6 TYPE2 N-S	
#2	7-682-552-09	SCREW +P 3X16	
#3	7-682-547-09	SCREW +B 3X6	
#4	7-685-132-19	SCREW +P 2.6X5 TYPE2 NON-SLIT	
#5	7-682-147-01	SCREW +P 3X6	
#6	7-628-253-20	SCREW +PS 2X6	
#7	7-682-646-09	SCREW +PS 3X5	
#8	7-628-253-00	SCREW +PS 2X4	
#9	7-627-553-37	SCREW (M2X3), SPECIAL HEAD	
#10	7-685-871-01	SCREW +BVTT 3X6 (S TIGHT)	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

DSR-20MD/20MDP

RMT-DS20

SONY

SERVICE MANUAL

US Model
Canadian Model
DSR-20MD
AEP Model
Australian Model
New Zealand Model
DSR-20MDP

SUPPLEMENT-1

File this supplement with the service manual.

• Addition of specifications.

SPECIFICATIONS

Medical Specifications

Protection against electric shock:
Class I

Protection against harmful ingress of water:
Ordinary

Degree of safety in the presence of flammable anesthetics or oxygen:
Not suitable for use in the presence of flammable anesthetics or oxygen

Mode of operation:
Continuous

9-974-189-81

Sony Corporation
Personal VIDEO Products Company

99J0511-1

Published by Safety & Service Engineering Dept.